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KODIAK MANAGEMENT AREA
COMMERCIAL HERRING SAC ROE AND FOOD/BAIT FISHERIES, 1995

By

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Area Description

The Kodiak Management Area (KMA) comprises the entire Kodiak archipelago and that portion of the Alaska Peninsula which drains into Shelikof Strait between Cape Douglas and Kilokak Rocks at Imuya Bay. The archipelago is approximately 150 miles long, extending from Shuyak Island south to the Trinity Islands. The Alaska Peninsula portion is about 160 miles long and is separated from the archipelago by the Shelikof Strait which averages 30 miles in width (Figure 1).

Historical Perspective

The Pacific herring *Clupea pallasi*, sac roe fishery began in Kodiak in 1964. From 1964-1995 sac roe herring harvests have averaged 1,862 short tons (tons) (Table 1 and Figure 2). Prior to 1974, the fishery was unregulated with regard to harvest quotas, gear types, seasons, and fishing periods. From 1964-1977 purse seine gear was used exclusively, with an average annual harvest of 898 tons and up to ten vessels participating in the fishery. Starting in 1974 purse seine gear was restricted to 150 fathoms in length and 1,000 meshes in depth. Between 1974 and 1978 the season ran from March 1 through June 30 with a harvest quota of 3,400 tons. Annual harvests, along with effort levels, fish abundance, prices and processor interest, fluctuated greatly from 1964 through 1977. Improved market conditions in 1978 prompted increased effort in this fishery with 29 purse seiners and 11 gillnetters participating. It was during this time period that spotters and tenders became involved in the fishery.

Between 1977 and 1982 the regulatory and management strategy went through a rapid developmental phase. Regulatory changes focused on gear efficiency, gear conflicts between seiners and gillnetters, gear level restrictions (exclusive registration and limited entry) and closed waters. In 1979 the sac roe season was reduced to May 1 through June 30, and the overall Guideline Harvest Level (GHL) was reduced to 2,400 tons distributed throughout the management area. A limit of 300 fathoms was also placed on the maximum length of gillnets and fishing periods were first limited to 48 hours open followed by 24 hour closures.

The maximum lengths for gillnets and purse seines were reduced again in 1981 to 150 fathoms and 100 fathoms, respectively. In addition, trawl and beach seine gear were eliminated as legal gear during the sac roe season. Fishing periods were established by emergency order in 1981, in which 24 hour fishing periods were followed by 24 hour closures. Beginning in 1982 the starting date for the season was changed from May 1, to April 15. In 1985 the fixed overall GHL of 2,400 tons was replaced by the current harvest strategy where GHL's are set annually on a stock by stock basis.

The overall regulatory effect during the developmental phase (1977-1982) has been the emergence of a relatively stable commercial sac roe herring fishery through 1991. During the last four years the herring stocks have dramatically increased with record to near record high harvests occurring in 1992 through 1995, averaging 4,927 tons.

Beginning in 1979, combined gear levels increased substantially, reaching a high of 201 units (92 seiners and 109 gillnets) and 193 units (79 seiners and 114 gillnets) in 1980 and 1981 respectively (Table 1 and Figure 3). With the implementation of limited entry following the 1981 sac roe season, new entry into the fishery was restricted to past participants until permanent transferable permits could be awarded. Since 1982, gear levels have been relatively constant with 90 to 120 units of gear fished annually. Transferrable permits for both gear types are still increasing as the Limited Entry Commission continues its determinations of participants who may qualify for a transferable permit. Only 52-81% of the available permits have been fished annually from 1989 through 1995 (Table 2).

Fishery Characteristics

The current KMA sac roe herring fishery occurs from April 15 through June 30 in 40-50 bays and coastal locations. The fishery opens at 12:00 Noon on April 15, with the entire management area opened at one time, excluding those areas where local stocks require protection. A unique characteristic of this fishery is that it typically commences prior to any major build-up of herring. This allows for a greater distribution of effort, which should reduce harvest rates within individual bays. Both gear types fish the same areas during the same time periods.

The overall trend in harvest during the past 17 years has been relatively stable, averaging 2,766 tons per year (Table 3). Prior to 1978, the entire sac roe herring harvest was taken by seine gear. In 1978 seven units of gillnet gear accounted for 3% of the total harvest. From 1979 to 1995 the percentage of the total harvest by seine gear ranged from a high of 85% to a low of 60% and averaged 76%. Gillnet percentage of total harvest peaked in 1988 at 40%, and averaged 24% from 1979-1995.

To reduce operational costs and to cover more areas most purse seiners form combines of two to ten vessels. These combines include one or several tenders and spotter aircraft. By 1979 the use of small, single engine, float equipped airplanes became more prevalent. Airplanes are the most productive way to find and direct seiners to harvestable herring. In 1986, several seiners started using side scanning sonar to locate schools of herring. This technology enabled fishermen to work during any time of the day or night and in adverse weather conditions which were unworkable for airplanes. Sonar technology continues to improve and most seiners are now equipped with scanning sonar equipment.

Gillnet vessels generally work independently and usually rely on processors to provide tenders to deliver their fish to the processing location. A few gillnetters are equipped with scanning sonar but the majority of these fishermen rely on color down-sounding sonar to locate herring schools, or fish areas where seiners are making sets.

Since 1979 seiners have gradually increased seine depths to the legal limit of 1,025 meshes, which includes 25 meshes of chaffing gear. Seines are restricted to 100 fathoms in length, however there was no restriction on the size of web which could be used. Because mesh size is not regulated several seiners have included salmon web in the lower portion of the seine. Further, the weight of the lead line was increased which resulted in nets which fished deeper (23-27 fathoms), sank faster, and improved catch rates.

Similarly, the gillnet fleet has evolved from floating nets of 80-100 meshes in depth to sinking nets with 120-160 meshes in depth. Gear efficiency appeared to have peaked prior to the 1994 season. It was generally assumed that deeper nets would be too difficult to operate on small gillnet vessels. Beginning in 1994 several gillnetters effectively used nets which were 240-300 meshes in depth and the use of this size gear increased for the 1995 season. Over the last few years the use of mechanical shakers has increased. The shaker is now a common tool and greatly reduces the time and effort needed to remove herring from the net and greatly increases gear efficiency.

During 1978-1983 herring were harvested at or near their spawning area. As fishermen's knowledge increased in identifying these areas, gillnet gear has been fished in deeper waters, (15-25 fathoms) further from the spawning destination. Fishing deeper waters and nets has increased the amount of herring harvested with low roe recovery. In most cases this fish is dumped. If ADF&G field crews document this then the poundage is subtracted from the management unit GHL. In some cases the low quality herring is sold as bait, which is also subtracted from the management unit GHL.

The Alaska Department of Fish and Game, (ADF&G), relies on the fishing industry to establish roe recovery standards. Generally, tenders will have a processor representative onboard to ensure that marketable sac roe quality herring are harvested. Competition among shore-based and floating processors results in this fishery having one of the highest exvessel values per ton in the state. The quality of Kodiak sac roe herring is generally high, due to inseason handling of a relatively small amount of herring over a long time period.

Fishery Monitoring

The ADF&G Commercial Fisheries Management and Development Division (CFMDD) manages this fishery from its Kodiak Office. From 1974-1993 ADF&G used one state vessel to monitor this fishery. In 1994 and 1995 a second state vessel was utilized to monitor the early portion of the fishery. The ADF&G vessel R/V Resolution was used in 1994 and the Fish and Wildlife Protection (FWP) vessel M/V Trooper assisted in 1995, with an ADF&G biologist aboard. From 1979-1995, in conjunction with the state vessels, several two person ADF&G field crews were also utilized to monitor this fishery. For the 1995 season a fishery technician was placed aboard a floating processor to collect catch reports and samples from the floating processors which anchored at Port Bailey, approximately 25 miles west of the city of Kodiak.

Field crews are stationed in management units which have historically produced the major harvests for a district. These crews are positioned in remote bays by chartered float planes or vessel and are equipped with an inflatable boat or skiff. Daily contact with fishermen, spotters and tender operators is maintained to acquire fishery data. Current harvest, effort levels, and fleet movements are reported via single side band (SSB) radio at least three times per day. The use of field crews has been a key element in preventing an excessive harvest from occurring and exceeding the GHL. Field crews also identify herring spawning areas and collect age-weight-length (AWL) samples from the commercial harvest. Frequent ADF&G aerial surveillance of the entire area supplements and often directs the placement of fishery monitoring field crews. The ADF&G office staff tally field crew, processor, and tender reports to assess herring harvests and

decide which management units need to be closed to fishing. Industry spotter reports are also used to provide information concerning all aspects of the fishery. A "Kodiak Sac Roe Herring Harvest Strategy" is distributed annually, which describes in detail the guideline harvest levels, regulatory changes, and expected fishing periods (Appendix A).

Fishing Seasons and Weekly Fishing Periods

The fishing season for the Kodiak sac roe herring fishery opens by regulation on April 15 and closes by regulation on June 30 (ADF&G 1995). Fishing periods are established by emergency order. For the past 14 years fishing periods began at 12:00 noon on odd numbered days and closed at 12:00 noon on even numbered days of the month. Staggered days of fishing provide clearly defined closed periods, which allows ADF&G staff time to assess, summarize, and update all harvest data from previous fishing periods.

The 1995 fishery was initially conducted with fishing periods lasting 24 hours. Beginning April 21, fishing periods were reduced to 10 hours (12:00 noon to 10:00 P.M.) followed by 38 hour closures. This change in the fishing schedule was prompted by: 1) ADF&G's inability to monitor the purse seine fleet during the night, 2) near record numbers of purse seine gear participating in the fishery, and 3) low roe recovery standards which were set by some processors. Beginning April 27, 24 hour fishing periods were reinstated in those management areas where ADF&G had fishery monitoring crews present. On May 3, the fishing schedule returned to 24 hour openings followed by 24 hour closures for all management units not previously closed due to herring harvest.

Districts and Management Units

The sac roe herring fishery districts and management unit descriptions were redescribed to facilitate the management of the 1995 fishery. The new descriptions are based upon the 1983 datum baseline on current NOAA marine charts. The previous descriptions are based on older baseline marine charts and discrepancies exist on management unit boundaries. The new descriptions include 13 districts which define geographical areas used in managing the sac roe and food\bait herring fisheries (Figure 4). The new descriptions were put into effect by emergency order for the 1995 fishery and will be proposed to the Alaska Board of Fisheries (BOF) during the 1995 meeting as a regulatory change. Sac roe fishery districts are further broken into management units intended to define the spawning area used by a stock of herring, or may be used to define a geographical area. There are a total of 81 management units.

Guideline Harvest Levels

Preseason guideline harvest levels (GHL's) are established for all management units which have produced consistent herring harvests in previous seasons. These GHL's reflect the status of a particular stock of herring by management unit or district. Criteria for establishing the 1995 GHL include: 1) 1994 expected biomass vs. actual biomass estimates, 2) trends in age composition, 3) level of recruitment (age-3), 4) proportion of the spawning population age-5

and younger, 5) proportion of age-2 fish in the spawning biomass (indicator of future recruit strength), and 6) spawn observations (extent, frequency, amount deposited). This information is supplemented by fishery performance information, i.e. the expected vs. actual harvest timing, duration, and level. Some management units are designated "exploratory" and are assigned no GHL because these areas have had sporadic or no harvest of herring in past years. Inseason closures in these exploratory areas are used to ensure that excessive harvests are minimized. If at any time during the season it appears that preseason expectations are incorrect, GHL's can be adjusted above or below preseason levels.

From 1979-1982 the KMA GHL was fixed at 2,400 tons. From 1983-1995 the GHL has varied each year (based on the criteria listed above) from a low of 1,640 in 1987 and a high of 4,550 in 1994. The preseason GHL has accurately reflected the actual harvests (Figure 5.). These preseason harvest projections aid fishermen and processors in planning prior to the start of each season.

Inseason Fishery Management

Inseason management of the sac roe fishery relies primarily on ADF&G field crews stationed in management units where harvests are anticipated. Mobility of field crews to cover management units has improved in recent years with the addition of three, 21' skiffs and the use of state vessels. Presently two skiffs are used by field crews and a third skiff works from the ADF&G vessel R/V K-Hi-C. These skiffs allow field crews to monitor more management units and under rougher sea conditions than the 12 foot inflatable boats. Two crews still utilize inflatable boats which permit the crews to be rapidly moved by aircraft. The R/V K-Hi-C acts as mobile field station along with providing logistical support to field crews.

Generally, once the preseason GHL has been achieved for a management unit, it is closed for the season. Due to the rapid pace at which some fisheries occur, in-period closures are frequent. In management units which have an ADF&G field crew present, in-period closures may occur with as little as 15 minutes advance notice. In management units which do not have field crews present in-period closures may occur by: 1) announcement on single side band frequency 4.125 Mhz following the marine weather forecast at 8:00 a.m. or 6:00 p.m. daily and at 11:00 P.M. by ADF&G announcement, or 2) field announcement with the arrival of an ADF&G representative.

Processors and independent tender operators are required to provide daily tallies of herring deliveries by management unit and accurate estimates of herring onboard tenders that have not yet delivered to the cannery. Timely and accurate harvest reports from ADF&G field crews, fishermen, spotters, and processors are critical for assessing herring harvests and guide the management of the fishery. To date industry cooperation has been excellent in support of this fishery.

Actual fishery performance is used to evaluate the health of a particular fishery. Key components include: 1) duration of fishing time to harvest the management unit GHL, 2) catch per unit of effort, and 3) quality of herring harvested (including roe recovery, weight, and age composition).

Fish Ticket Data

Commercial catch data is compiled by ADF&G, CFMDD personnel. Actual dock weights of delivered herring are used inseason to verify initial harvest estimates. All final data are compiled post season from sales receipts (fish tickets) received from processors of purchased tonnages of herring. Fish ticket data is then compiled, and a summary of the herring harvest is generated. The ADF&G staff edits this summary for errors and lost fish tickets.

Biomass Estimates

ADF&G has attempted in previous years to conduct aerial surveys to assess the total KMA herring biomass. The results of aerial assessments provided only a limited evaluation of the biomass and did not give a true representation of the total biomass. Problems associated with aerial surveys in the Kodiak Area include: 1) herring tend to spawn in the evening, night, and early morning hours, limiting the time fish are visible in shallow water, 2) most management units have many distinct schools of herring which will spawn from April through June, 3) large numbers of juvenile herring, spawning herring, spawned out herring, and other fishes such as capelin can be found in sac roe herring fishery areas (fish may stay within an area for the duration of the sac roe season or may move, so that aerial biomass estimates may be duplicated or be incomplete), 4) the large geographical area for the KMA (57 management units which have identified spawning stocks), and 5) adverse weather conditions. Industry spotters have helped greatly in past seasons by providing biomass estimates, spawn observations, fleet movements and harvest estimates. These spotters are very experienced, many having been involved for several seasons in the KMA and other statewide herring fisheries. Biomass estimates are compiled for each district from surveys flown by industry and ADF&G spotters. It has been estimated by both ADF&G and industry spotters that only 25% to 50% of the actual biomass is observed for the KMA herring stocks. There appears to be a significant amount of subtidal spawning occurring in waters 10-20 fathoms in depth. These fish and spawning activity may not be detected from aerial surveys. Previous attempts to assess this subtidal spawning with divers were not successful.

Commercial Catch Sampling

Commercial catch samples are taken from purse seine harvests, except when a management unit has only a gillnet harvest. Seine caught herring are preferred for samples, since this gear type is less size selective than gillnet gear. Field crews collect samples from multiple seine sets within a management unit to obtain a representative sample of all age classes in the catch. Samples are also obtained from tenders and/or fishing boats delivering to the processor if it is known that the catch being delivered came from a single management unit. Catch samples are frozen upon arrival in Kodiak and are analyzed by the end of the sac roe season. Commercial catch samples are thawed and analyzed for age, weight, length, sex, and sexual maturity.

A single scale is removed from the preferred area, located on the left side of the fish, three rows below the lateral line and three scales posterior to the center of the opercular plate (Brodie, personal communication 1994). The scale is visually analyzed with the aid of a microscope to estimate the age of the fish in years.

Standard length measurements are taken on all herring sampled. This length is the straight line distance from the anterior most part of the fish, including the lower jaw with the mouth closed, to the end of the vertebra (hypural plate). Lengths are taken on all samples using a herring measuring board to the nearest millimeter (mm).

Weight measurements are taken on a Mettler balance to the nearest gram (g) of all fish within a sample.

The sex and sexual maturity of all sampled herring are recorded. Each fish is slit open and visually inspected for gonad relative maturity. The relative maturity is broken down into a scale of key characteristics ranging from virgin herring through spawned out herring, with eight levels of maturity identifying gonad key characteristics.

1995 Season Summary

The 1995 KMA sac roe herring season was 73 days in duration and a total of 4,604 tons of herring were harvested, which was three percent higher than the preseason GHL of 4,480 tons (Table 3). This was the third largest harvest for the fishery, exceeded by the 1994 and 1993 harvests of 5,893 and 4,929 tons respectively. Seine caught herring totalled 3,837 tons, which was 83% of the total harvest, while gillnet gear accounted for 767 tons, which was 17% of the total harvest. Harvest by gear type from 1979-1994 averaged 76% and 24% for seine and gillnet gear, respectively (Figure 6). During the period 1979-1995, seine and gillnets accounted for an average harvest of 2,140 and 626 tons, respectively (Table 3). The 1995 roe recovery averaged 9.8% for seine caught fish and 10.8% for gillnet caught fish. A combined average roe recovery of 10.0%. The average price per ton paid at the dock was difficult to establish due to the many factors involved, such as the size of herring harvested and delivery method, tendered or dock delivery. Prices ranged from $800 to $1500 a ton and for ADF&G's purposes an average price of $1270 a ton was used to calculate estimated values of the fishery. The total exvessel value of the fishery was estimated at $5.8 million.

A total of 73 seiners and 71 gillnetters fished during the 1995 season (Table 2). The 1995 seine effort was the highest experienced since 1981. The average exvessel earnings for seiners was estimated at $67,000 and $14,000 for gillnetters. There were 12 floating processors and seven shorebased plants, representing 14 companies registered to process herring within the KMA. A total of 108 tenders registered to transport herring within the KMA.

The increase in seine and floating processor effort can mainly be attributed to the closure of the Prince William Sound Management Area sac roe herring fishery. The relatively high preseason GHL for the KMA attracted seiners and processors to Kodiak. The floating processors operated in the vicinity of Port Bailey in Kupreanof Strait, near the major harvest locations of west Afognak Island and the Uganik District. The floating processors and most of the seine fleet departed the KMA at the end of April, to participate in the Togiak herring fishery.

District Summaries

The majority of the 1995 harvest was taken in the West Afognak, Uganik, Alitak, and Eastside Districts (Figure 7). Of the 81 management units in the KMA, herring was harvested from 32 units (Table 4), 16 of these units were closed inseason by emergency order, and 17 units were closed prior to the start of the season due to low stock abundance.

West Afognak District. The bays of Afognak Island are among the earliest areas in which herring are harvested in the KMA. ADF&G stationed one field crew, the ADF&G R/V Resolution, and the FWP vessel M/V Trooper in management units which were anticipated to have the earliest harvests. The field crew monitored the Raspberry Strait management unit, the R/V Resolution monitored Malina Bay for the initial opening, and the M/V Trooper monitored the Foul Bay, Paramanof Bay, and Malina Bay (Figure 8). On April 16, 709 tons of herring were harvested in Paramanof Bay exceeding the GHL of 400 tons and closing the unit. The Foul Bay management unit had a harvest of 801 tons (GHL of 75 tons) and closed April 25. The fact that the GHL was exceeding in these management units can primarily be attributed to stronger than expected spawning stocks. Age-7 herring were the dominant age class harvested in the aforementioned units.

The Raspberry Strait and Malina Bay management units had surprisingly low harvests this season, only 3 tons in Raspberry Strait and 55 tons from Malina Bay. The 1994 biomass observations and fishery harvests indicated strong stocks in these areas and it was felt that in the 1995 fishery this trend would continue. A possible explanation for the absence of herring within these management units is that they may have migrated to the Foul Bay and Paramanof Bay management units to spawn.

Of the six management units in this district which have GHL's, two were closed with the assistance of ADF&G field crews and the remainder were open through June 30. The total GHL for the district was 1,135 tons and a total of 1,504 tons were harvested. Purse seiners accounted for 96% of the harvest and gillnetters accounted for 4%.

North Afognak District. There are five management units within this district and four were closed prior to the start of the 1995 season (Figure 8). Herring stocks in these sections have declined in recent years, and closures were necessary to rebuild these stocks. There was no herring harvest from the one open management unit, the Shuyak Island Section.

South Afognak District. There are six management units within this district and all were closed prior to the start of the 1995 season (Figure 8). The herring stocks in this district have also declined and so all units were closed to rebuild the stocks.

Uganik District. A field crew and the R/V K-Hi-C were stationed within the Village Islands management unit to monitor the fishery within the Uganik District (Figure 9). On April 15 a large concentration of herring were present within the Village Island management unit, however the herring were "green" unmarketable herring. On April 18 a floating processor offered to purchase seven percent roe herring and approximately 120 tons was harvested during the night. Fishery activity intensified on the evening of April 19 and the Village Island management unit was closed at 9:30 P.M. with a total harvest of 314 tons, (GHL 250 tons). The fleet next moved

to the East Arm Uganik management unit and fishing activity concentrated near the boundary between East Arm and the Village Islands. It appeared that the herring biomass seen at Village Islands moved further into Uganik Bay at nightfall. During the night of April 19-20 at least seven seine vessels were observed fishing within the Village Island closed water area. The R/V K-Hi-C enforced the line through the night and no harvest occurred. The Terror Bay management unit was closed in the morning of April 20 with a harvest of 357 tons (GHL 200 tons). Most of this harvest occurred at night. On April 21 the fleet moved into the South Arm Uganik management unit and it appears that the herring biomass which was first harvested in Village Islands had moved further south into this management unit. A total of 392 tons (GHL 150 tons) was harvested in one hour and fifteen minutes of fishing time and the South Arm was closed. The East Arm and Northeast Arm Uganik Bay management units closed on April 23 with harvests of 179 tons (GHL 100 tons) and 78 tons (GHL 30 tons) respectively. The R/V K-Hi-C was moved to the Malina and Foul Bay management units, while the field crew returned to Kodiak. The West Uganik Bay management unit had a harvest of 19 tons, (GHL 75 tons). Fishery performance for the Viekoda Bay management unit was lower than anticipated for the second consecutive year, with no harvest this season. Of the eight management units in the Uganik District with GHL's, five were closed with the assistance of ADF&G field crews and the remainder were open through June 30. A district total of 1,340 tons were harvested from a district GHL of 915 tons, 92% of this harvest was with purse seine gear and 8% by gillnet.

Uyak District. The Uyak District was the largest herring producing district within the KMA through the 1980's (Figure 9). Since 1991 fishery performance and spotter observations have indicated a decline in abundance of herring in this district. ADF&G responded to this decline by reducing the GHL's for these management units for the 1992 through 1994 seasons. The entire district was closed during the 1995 herring season as a further step to promote the recovery of these stocks.

Alitak District. The Alitak District is comprised of nine management units, two are exploratory areas, and seven have GHL's (Figure 10). Fishing activity started within this district at the end of April with the majority of the seine fleet departing to the Togiak fishery in early May. The R/V K-Hi-C monitored the Alitak District from May 2 to May 11. There was also a field crew stationed in the Inner Deadman Bay management unit. The Sulua Bay management unit was closed on May 13 with a harvest of 199 tons, (190 ton GHL). The Portage Bay section, (GHL 75 tons) also closed inseason on June 12 with a harvest of 77 tons. The remaining management units were open through June 30. The ADF&G crew moved from Inner Deadman Bay to Upper Olga Bay on May 26. Fishery performance in this unit has declined over the last four years and the GHL has been lowered annually. There was no harvest this season. The Inner and Outer Deadman Bay management units remained open until June 30 and the harvest totalled 12 tons (GHL 150 tons) and 118 tons (GHL 125 tons) respectively. The Inner Alitak exploratory unit had a harvest of 17 tons. The four remaining management units within this district had no harvest. The Alitak District total GHL was 660 tons, and 373 tons were harvested. Seine gear harvested 88% of the harvest and gillnet gear 12%.

Eastside District. The R/V Resolution deployed a two person ADF&G field crew at Amee Bay within the East Sitkalidak management unit (Figure 11). This crew was equipped with a 21 foot skiff which enabled them to monitor seven management units along the eastside of Kodiak Island. Approximately 30 gillnet and 15 seine vessels were present within this district at the start of the

season. A raft equipped crew was also flown into Kiliuda Bay. On April 28 the Outer Kiliuda Bay management unit (GHL 80 tons) was closed with a harvest of 133 tons. The Inner Kiliuda Bay and Shearwater Bay management units were closed on May 2 with harvests of 83 tons, (GHL 80 tons), and 112 tons, (GHL 90 tons), respectively. The Kiliuda field crew was moved to the Alitak District while another raft equipped crew was placed in the Inner Ugak Bay management unit. The Tanginak Anchorage management unit was closed on May 8 with a harvest of 16 tons (GHL 15 tons). The Barling Bay management unit was closed on May 13 with a harvest 56 tons, (GHL 50 tons). The Outer Ugak Bay management unit was closed on May 17 with a harvest of 135 tons, (GHL 60 tons). The East Sitkalidak Strait management unit GHL was adjusted up an additional 100 tons inseason due to better than anticipated spawning biomass. This unit was closed on May 24 with a harvest of 391 tons (adjusted GHL 390 tons). Of the 14 management units with GHL's in the Eastside District, six units were closed with assistance of field crews, one unit was closed by the ADF&G office staff, and the remaining units were open until June 30. The total GHL for the Eastside District was 1,265 tons. A total of 1,147 tons were actually harvested, with 56% of the harvest from purse seine gear and 44% of the harvest from gillnet gear.

Northeast District. There are five management units in the Northeast District and four have GHL's (Figure 12). The Woman's Bay management unit had the only harvest this season of 9 tons from gillnet gear, (GHL 100 tons). These management units were open through June 30.

Inner Marmot District. There are five management units within the Inner Marmot District and three have GHL's (Figure 8). The Anton Larsen Bay management unit was closed prior to the start of the season due to low stock abundance. The Kizhuyak Bay management unit had the only harvest (14 tons), GHL of 15 tons. Seine gear and gillnet gear accounted for 35% and 65%, respectively, of the total district harvest.

North Mainland District. The North Mainland District is comprised of four management units. One unit has a GHL, two units are exploratory, and one unit is offshore. The offshore unit is not expected to produce a sac roe harvest (Figure 13). The three Mainland Districts experience more extreme weather conditions than the other districts around Kodiak and Afognak Islands. Sea conditions encountered while crossing the Shelikof Strait to reach these districts greatly reduces the mobility of vessels fishing this district. The Mainland Districts frequently experience high winds, low ceilings, and limited visibility, greatly limiting the effectiveness of spotters. Fishing effort in these three districts generally involves only one or two seine combines and 5-10 gillnet vessels annually.

No field crews are stationed in these districts due to the high expense of placing and supplying crews in this remote area. The weather conditions, combined with the small number of vessels which fish these units reduces the likelihood that excessive harvests will occur. A total of 26 tons were harvested by gillnetters from the Inner Kukak Bay management unit (GHL 65 tons). There were no other harvest from this district.

Mid-Mainland District. The Mid-Mainland District is comprised of six management units. Two units have a GHL, two units are exploratory, and two units are offshore. The offshore units are not expected to produce a sac roe harvest (Figure 14). The Inner Katmai management unit (GHL 65 tons) had the only harvest of 21 tons, from seine gear.

South Mainland District. The South Mainland District consists of two management units, one has a GHL and the second is an exploratory unit (Figure 15). These two management units on the southern part of this district are the farthest units from the port of Kodiak. A total of 55 tons were harvested with seine gear from the Wide Bay management unit (GHL 125 tons).

Sturgeon/Halibut District. The Sturgeon/Halibut District on the southwest portion of Kodiak Island has no management units or GHL and consists mostly of offshore areas that are not likely to produce a sac roe herring harvest (Figure 14).

Age Composition, Weights, and Lengths

During the 1995 season, age-7 herring were the dominant age class (37%) found in the purse seine harvest, (Figure 16). The remaining age classes represented the following percentages of the harvest: age-3 (3%), age-4 (16%), age-5 (9%), age-6 (2%), and age-8 (28%) and Age-9-11+ (5%). In general, the West Afognak and Uganik Districts had a dominance of age-7 herring while the Eastside District management units had a dominance of age-8 herring (Figure 17 and Table 5).

Age-3 herring are considered "recruit herring", entering into the commercial fishery and spawning for the first time. When compared to previous brood years, age-3 herring showed a decrease in average weight in the 1991 harvest. This trend continued in 1992-1995 when these fish were harvested as age-4-7 respectively, being the smallest by age observed in this fishery (Table 6). This reduction in weight coincides with the increase in biomass for most KMA herring stocks. All other age classes in the 1995 fishery had comparable growth rates to the past five years (Table 7 and 8).

Spawning Biomass

In 1995 the spawning biomass index for that portion of the KMA fished was estimated to range from 37,000 to 47,000 tons, as determined by industry spotter and ADF&G surveys. This is the third highest biomass estimate recorded for this fishery from 1979-1994. Since 1988 the indexed biomass has increased dramatically from 5,500 tons to 15,500 tons in 1990 and doubled by 1992 to 32,000 tons. A breakdown by district where data is available includes; 10,000-12,000 tons in the West Afognak District, 10,000-12,000 tons in the Eastside District, 11,000-14,000 tons in the Uganik District, 4,000-6,000 tons in the Alitak District, and 2,000-3,000 tons in the Mainland Districts. The sac roe herring harvest of 4,604 tons represents a total indexed exploitation rate ranging from 10% to 12% of the spawning biomass.

These exploitation rates should be qualified, since surveys represent an unknown and undoubtedly highly variable proportion of the actual biomass. These exploitation rates can be used for trend evaluation, but should not be compared to the spawning biomass indices achieved by ADF&G in Prince William Sound, Cook Inlet, and Bristol Bay. These areas have a relatively large biomass available for aerial indexing and the observed biomass is annually less variable, so there is more opportunity for observing a greater and more consistent proportion of the actual total biomass. The exploitation rates achieved in these fisheries would be more comparable between areas.

Enforcement Issues

The Alaska Department of Public Safety, Fish and Wildlife Protection (FWP) substantially increased their enforcement coverage of the KMA herring fishery for the 1995 season. As previously mentioned, the FWP vessel M/V Trooper worked jointly with ADF&G in monitoring the fishery and conducting enforcement work, with an ADF&G biologist onboard. Additionally, the FWP vessel M/V Spiridon and a FWP float equipped Cessna 185 provided surveillance of the fishery.

The presence of FWP greatly reduced the burden on ADF&G field crews, especially during openings and emergency closures. Enforcement activity also focused on purse seine length and depth which resulted in three seines being confiscated. The updated descriptions of management units using the 1983 datum marine charts eliminated the discrepancies between the descriptions of areas and the marine charts that was experienced in the 1994 fishery. As previously mentioned, there were some problems with enforcing management unit boundaries at night by ADF&G staff when FWP was not present. It is hoped that FWP will continue this level of enforcement activity which contributed to a more orderly fishery.

1996 Management Plans and Issues

Based on the age class data collected in 1995 and the high biomass estimates for the past four years, the preliminary GHL for the KMA in 1996 is 4,000 tons, down from the 1994 GHL of 4,480 tons. The 1996 harvest is expected to target the dominant age-8 and age-9 year old fish which should comprise 50-60% of the harvest. These age compositions, spawn observations, and fishery performances indicate that the Kodiak area biomass should support a stable sac roe fishery over the next few years. Observations of age-2 and-3 herring during the 1995 season indicate a good level of recruitment.

ADF&G will continue to rely greatly on industry spotter pilots, processors, and fishermen to provide information to help manage this fishery. The current harvest strategy has been tested with record harvests and high gear levels during the last four years. The competition between fishers is intense and gear conflicts between fishers occasionally occur. The increase in seine effort levels and the gillnetter's diminishing percentage of the total harvest has created unrest for gillnet permit holders. A report detailing ADF&G concerns associated with the current harvest strategy and proposals for the 1995 BOF meeting was published in September 1995, "Kodiak Management Area Sac Roe Herring Briefing Document" (Gretsch 1995).

HERRING FOOD/BAIT FISHERY

Historical Perspective

The earliest recorded herring harvest for the KMA was in 1912. The herring fishery did not notably expand until the early 1920's when industry came to Kodiak in search of new areas where large herring were available. Large herring were preferred since the initial products were

utilized as food, such as salted and pickled herring, much in demand after World War I. By the late 1920's the demand for herring food products had declined, but demand for reduction products, such as fish meal and oil, increased. During the fishery's peak production years (1934-1950) it was primarily a reduction fishery and yielded tonnages which dwarf current food/bait harvests (Figure 18). During the seventeen year period 1934-1950 the average harvest was 31,600 (Table 9). The primary products were fish meal and oil, which required large quantities of herring. Limited amounts were used for salted food and bait products. Major harvest areas were located in eastern Shelikof Strait and adjacent bays and straits along the west side of Kodiak and Afognak Islands. Quotas and harvest weights were measured by barrels (where 250 lbs. of herring equals one barrel) until 1956 when the unit of measure was changed to short tons. Historically large, approximately 70 foot, "sardine seiner" type vessels were used in conjunction with holding pounds to supply herring to five major reduction plants. In addition, small local seine vessels and gillnets were used for a portion of the food industry delivering to floating and small shore based salting and pickling operations.

From the early 1960's to 1973, there were no harvest quotas or closed seasons. Beginning in 1974, an open fishing season was established between August 1 through February 28; however no regulatory GHL's were in effect until 1979. In 1979 and 1980, the GHL was 12,600 tons for the food and bait season. As a result of the rapidly developing sac roe fishery, the GHL for the food/bait season was reduced to 1,000 tons in 1981 and remained at that level through 1987. Regulatory GHL's for the food/bait herring fishery were replaced with a regulatory harvest strategy in 1988 which was further defined in 1993 to address harvest activities in the Shelikof Strait (Appendix B). From 1965 through 1995 the food/bait harvest has averaged 198 tons (Figure 19).

Fishery Characteristics

The current food/bait herring fishery can be characterized as a secondary commercial fishery on herring concentrations located in Kodiak waters. It is primarily a bait fishery providing a frozen product for longline and crab/cod pot fishers. Effort and harvest levels are at historical lows for the food/bait fishery, while the sac roe fishery supports relatively high levels of effort and harvest. The food/bait fishery is an open-to-entry fishery, while the sac roe fishery has been limited-to-entry since 1981. Existing regulations designate priority status to the sac roe fishery. During the Fall and Winter months of the early 1980's major concentrations of herring were observed in eastern Shelikof Strait and adjacent bays along the west side of Kodiak and Afognak Islands. The biomass exceeded that of known Kodiak spawning stocks. These herring were targeted by food/bait fishers and questions arose concerning the stock of origin of these fish. In 1986, a stock identification study based on scale pattern analysis was performed on herring harvested from a large biomass located in the east part of the Shelikof Strait (Johnson 1988). The study concluded that at least 80% of the East Shelikof herring sampled were of Kamishak Bay spawning stock origins, which is within the Lower Cook Inlet Management Area.

In March 1988, the Alaska State Board of Fisheries allocated not more than two percent of the previous season's total available spawning biomass from Kamishak to be harvested during Kodiak's food/bait herring fishery. For local Kodiak spawning stocks, which are exploited during

the sac roe fishery, the food/bait GHL on those same stocks is 10% of the previous seasons sac roe harvest.

Problems arose from this management plan because it was difficult to assign harvest from the intermixed stocks to Kodiak or Kamishak. This plan was in affect through the 1992/93 season.

1995/96 Harvest Strategy

In November 1992, the Alaska Board of Fisheries approved the Kamishak Bay District Herring Management Plan (5AAC27.465) which outlines criteria for the management of the Kamishak Bay sac roe herring and the Shelikof Strait food/bait fishery (ADF&G 1995). This plan defines allocations to these fisheries based on biomass estimates.

In January 1993 the Alaska Board of Fisheries placed into regulation a harvest strategy defining the criteria for managing the Kodiak food/bait herring fishery (5AAC 27.535). This new strategy combines the Kamishak stock GHL with the Kodiak stock GHL for food/bait management units FB 1, FB 4, and FB 5. When this combined GHL is achieved the Shelikof Strait food and bait management units are closed collectively. This plan alleviates the problem of identifying the spawning stock of a harvest in areas where intermixing may occur.

The allocation of Kamishak Bay herring stocks to the Shelikof Strait food and bait fishery is based on the spawning biomass of age-5 and older herring and not on the biomass of juveniles. The quantity of herring stocks aged four years and younger caught during the food/bait fishery are adjusted to approximate the biomass of a similar number of age-5 herring. Age-4 and younger herring were selected because in the Kamishak spawning stocks, herring are not considered to have attained complete recruitment into the spawning biomass until they have reached age-5.

By regulation, the herring food/bait season extends from August 1 through February 28. The entire KMA is open to continuous fishing on August 1 for all legal gear types, which include purse seine, gillnet and trawl. There are no exclusive gear areas.

During the January 1993 Alaska Board of Fisheries meeting a new regulation was adopted concerning the gear restrictions placed on purse seines. The purse seine specifications were increased to allow nets 150 fathoms in length and 1,625 meshes in depth. Prior to the 1985/86 food/bait season there were no gear restrictions. Restrictions on seine and gillnet gear were imposed for the 1986/87 season. Seine gear was reduced to 100 fathoms and 1,025 meshes. Gillnets were restricted to a length of 150 fathoms. There were no trawl restrictions.

All permit holders and buyers are required to register at the Kodiak ADF&G office prior to fishing or purchasing herring. At that time, management plans are issued and catch reporting procedures and current regulations are reviewed. Each landing is sampled for age, weight, length (AWL) information and skipper interviews are conducted to evaluate which sac roe stocks are being impacted.

1995-96 Season Summary

The 1995-96 allocation for Kamishak herring stocks over wintering in Shelikof Strait was 250 tons. In addition, the GHL for Kodiak stocks in food/bait management units FB 1, FB 4, and FB 5 was 340 tons. The combined GHL for both stocks affected by (5 AAC 27.465) Kamishak Bay District Herring Management Plan was 590 tons.

The Kodiak spawning stocks total GHL was 458 tons, which represents 10% of the previous spring's sac roe harvest on a stock by stock basis. The total GHL for the KMA was 708 tons (250 tons Kamishak allocation and 458 tons Kodiak stocks).

Kodiak's food/bait herring season began August 1, 1995 and will remain open until February 28, 1996. Fishing periods are 24 hours per day and seven days a week. Only one emergency order (E.O.) has been issued, establishing fishing periods and areas closed. The East Afognak (Food/Bait unit #3), North Afognak (Food/Bait unit #2), Uyak (Food/Bait unit #5), and the Inner Marmot (Food/Bait unit #10) were closed prior to the start of the food/bait herring season. The sac roe herring stocks within these units have declined during the last four years so these units were closed to prevent further exploitation during the food/bait fishery.

Through November 3, 1995 a total of approximately 276 tons were harvested in the KMA from management units which are covered by the Kamishak Bay District Herring Management Plan. As stated in the Kamishak Bay District Herring Management Plan (5 AAC 27.465) the quantity of age-4 and younger herring harvested is adjusted to a similar number of age-5 herring. This adjusted harvest totalled 334 tons (Table 10).

Seven vessels and seven buyer/processors registered for this fishery. Trawl gear accounted for 68% of the total harvest and purse seine gear 32%. The total exvessel value of this fishery to date is approximately $110,000 dollars.

AWL samples along with herring biomass observations from the fishers were obtained upon delivery to the processors. A portion of this years harvest was delivered and processed in Homer.

No biomass surveys were conducted in 1995 on overwintering herring concentrations.

1996-97 Management Plans and Issues

The success of purse seine gear in this fishery during the last three years will likely encourage other seiners to participate next season. Further, it appears that the Prince William Sound food/bait fishery will likely be closed and effort may shift to the KMA fishery. Additional on-grounds monitoring of the fishery will be necessary as gear levels escalate. Improvements in the timeliness of catch reporting may be needed with increasing effort.

HERRING SUBSISTENCE/PERSONAL USE FISHERY

Fishery Characteristics

The subsistence and personal use fishery for herring is regulated only during the sac roe herring fishery season, April 15 through June 30. During this time period, a permit is required for individuals who are not sac roe commercial fishermen to harvest herring. Sac roe commercial fishermen may retain herring from their lawfully taken commercial catch to fulfill their subsistence or personal use needs. Most of the herring caught during this time period are used for bait in commercial longline fisheries. However small amounts are used for food, sport fishing bait, and fertilizer. The conditions of this permit can be seen in Appendix C.

1995 Season Summary

A total of 21 permits were issued in 1995 and 2 were returned with harvest data. The total harvest was 175 pounds from the Alitak District. Generally, most permits are returned during the winter months and the actual harvest will likely be higher than reported at this time.

LITERATURE CITED

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Johnson, B.A. and C. Burkey, and D. Gaudet. (Draft manuscript 1988). Stock identification of Pacific herring in the bait fishery in Shelikof Strait, Alaska, 1985/86. Alaska Department of Fish and Game, Division of Commercial Fisheries. Juneau.

Table 1. Historical harvest and effort level for the sac roe herring fishery for the Kodiak Management Area, 1964-1995.

YEAR	TONS HARVESTED	SEINE	GILLNET	NUMBER of CO'S	NUMBER OF VESSELS TRAWLS	GILLNET	SEINE	TOTAL
1964	568	568	-	2	0	0	5	5
1965	657	657	-	2	0	0	8	8
1966	2,769	2,769	-	4	0	0	11	11
1967	1,662	1,662	-	4	0	0	5	5
1968	2,001	2,001	-	4	0	0	10	10
1969	1,130	1,130	-	9	0	0	21	21
1970	342	342	-	5	0	0	13	13
1971	284	284	-	2	0	0	4	4
1972	215	215	-	1	0	0	4	4
1973	831	831	-	4	0	0	11	11
1974	868	868	-	4	0	0	26	26
1975	8	8	-	3	0	0	2	2
1976	5	5	-	1	0	0	1	1
1977	338	338	-	3	0	0	11	11
1978	904	881	23	7	2	7	28	35
1979	1,735	1,457	278	8	0	125	57	182
1980	2,383	2,009	374	9	1	109	92	201
1981	2,065	1,596	469	9	0	114	79	193
1982	1,771	1,447	324	6	0	67	45	112
1983	2,318	1,797	521	7	0	64	41	105
1984	2,163	1,691	472	7	0	69	39	108
1985	1,968	1,244	724	7	0	81	34	115
1986	1,558	1,111	447	8	0	71	31	102
1987	2,146	1,591	555	8	0	62	29	91
1988	2,171	1,304	867	6	0	76	33	109
1989	2,249	1,513	736	6	0	83	37	120
1990	2,347	1,644	703	6	0	63	27	90
1991	2,432	1,697	735	6	0	64	32	96
1992	4,283	3,260	1,023	6	0	74	40	114
1993	4,929	4,203	726	6	0	86	41	127
1994	5,893	4,976	917	15	0	57	66	123
1995	4,604	3,837	768	17	0	71	73	144

Table 2. Summary of Commercial Fisheries Entry Commission status of sac roe herring limited entry permits, Kodiak Management Area, 1989-1995.

Gear Type	Year						
	1989	1990	1991	1992	1993	1994	1995[a]
Gillnet							
Transferable	68	72	74	97	95	99	94
Non-Transferable	44	27	28	11	8	8	5
Total Permits	112	99	102	108	103	107	99
Total Fished	83	63	64	74	86	57	71
Seine							
Transferable	47	47	48	59	66	69	65
Non-Transferable	25	25	22	13	12	14	13
Total Permits	72	72	70	72	78	83	78
Total Fished	37	27	32	40	41	66	73
Combined Totals							
Transferable	115	119	122	156	161	168	159
Non-Transferable	69	52	50	24	20	22	18
Total Permits	184	171	172	180	181	190	177
Total Fished	120	90	96	114	127	123	144

[a] This data does not include the number of unrenewed permits which consists of one seine and 11 gillnet permits in 1995.

Table 3. Kodiak sac roe herring fishery summary by year and by gear, 1979-1995.

YEAR	SEASON LENGTH (DAYS)	GUIDELINE HARVEST LEVEL (TONS)	TOTAL HARVEST (TONS)	HARVEST BY GEAR TYPE (TONS)		PERCENT HARVEST BY GEAR TYPE (TONS)		NUMBER OF LANDINGS		NO. UNITS		AVG. $'S EARNED	
				SEINE	G/N	SEINE	G/N	SEINE	G/N	SEINE	G/N	SEINE	G/N
1979	36	2,400	1,735	1,457	278	84	16	-	-	57	125	38,347	3,333
1980	35	2,400	2,383	2,009	374	84	16	-	-	92	109	14,978	2,573
1981	48	2,400	2,065	1,596	469	77	23	207	406	79	114	14,402	3,471
1982	59	2,400	1,771	1,447	324	82	18	138	191	45	67	17,819	2,719
1983	51	2,400	2,319	1,797	522	78	22	164	284	41	64	35,061	6,520
1984	54	2,400	2,163	1,691	472	78	22	138	212	39	69	34,691	5,467
1985	59	2,000	1,968	1,244	724	63	37	118	348	34	81	32,935	8,039
1986	61	1,690	1,558	1,110	448	71	29	132	385	31	71	34,010	6,002
1987	61	1,640	2,146	1,591	554	74	26	122	411	29	62	54,872	8,945
1988	59	2,065	2,171	1,304	867	60	40	169	555	33	76	51,350	14,837
1989	76	2,415	2,249	1,513	736	67	33	171	627	37	83	34,749	7,537
1990	75	2,375	2,347	1,644	703	70	30	156	544	27	63	51,724	9,652
1991	83	2,510	2,432	1,697	735	70	30	169	587	32	64	45,077	9,762
1992	77	2,720	4,283	3,260	1,023	76	24	185	706	40	74	40,750	6,912
1993	77	3,525	4,929	4,203	726	85	15	237	294	41	86	56,380	4,640
1994	71	4,550	5,893	4,976	917	84	16	285	485	66	57	60,320	12,860
1995	73	4,480	4,604	3,837	767	83	17	280	642	73	71	66,850	13,750
17-YR AVG.	62	2,610	2,766	2,140	626	76	24	157	393	47	79	40,250	7,470

Table 4. Sac roe herring harvest summary listing guideline harvest levels by management unit, harvest in tons by gear type, percentage of harvest by gear type, total harvest, and date the management unit closed for the Kodiak Management Area, 1995.

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
WEST AFOGNAK DISTRICT								
WA10	Raspberry Strait	350 Tons	0	-	3.0	100	3.0	6/30
WA20	Malina Bay	250 Tons	50.0	91	5.1	9	55.1	6/30
WA30	Paramanof Bay	400 Tons	671.8	95	37.2	5	709.0	4/16
WA32	Foul Bay	75 Tons	782.5	98	18.5	2	801.0	4/25
WA40	Devils Inlet	10 Tons	0	-	0	-	0	6/30
WA40	Blue Fox	50 Tons	0	-	0	-	0	6/30
WA50	Offshore W. Afognak[a]	-	0	-	0	-	0	6/30
DISTRICT TOTAL		**1,135 Tons**	**1,504.3**	**96**	**63.8**	**4**	**1,568.1**	
NORTH AFOGNAK DISTRICT								
NA10	Shuyak Island	20 Tons	0	-	0	-	0	6/30
NA20	Delphin Bay	Closed	0	-	0	-	0	-
NA30	Perenosa Bay	Closed	0	-	0	-	0	-
NA40	Seal Bay	Closed	0	-	0	-	0	-
NA50	Tonki Bay	Closed	0	-	0	-	0	-
DISTRICT TOTAL		**20 Tons**	**0**	**-**	**0**	**-**	**0**	**-**
SOUTH AFOGNAK DISTRICT								
SA10	Izhut Bay	Closed	0	-	0	-	0	-
SA20	Kitoi Bay	Closed	0	-	0	-	0	-
SA30	MacDonalds Lagoon	Closed	0	-	0	-	0	-
SA40	Danger Bay	Closed	0	-	0	-	0	-
SA50	Litnik	Closed	0	-	0	-	0	-
SA60	Duck Bay	Closed	0	-	0	-	0	-
DISTRICT TOTAL		**Closed**	**0**	**-**	**0**	**-**	**0**	**-**

-Continued-

Table 4. (page 2 of 5)

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
UGANIK DISTRICT								
UG10	Kupreanof	10 Tons	0	-	0	-	0	6/30
UG20	Viekoda	100 Tons	0	-	0	-	0	6/30
UG21	Terror	200 Tons	323.1	90	34.4	10	357.5	4/20
UG30	Village Island	250 Tons	300.5	96	13.4	4	313.9	4/19
UG31	W. Uganik Pass	75 Tons	3.5	18	16.0	82	19.5	6/30
UG32	NE Arm Uganik	30 Tons	77.6	100	0	-	77.6	4/23
UG33	E. Arm Uganik	100 Tons	158.4	89	20.4	11	178.8	4/23
UG34	S. Arm Uganik	150 Tons	368.2	94	24.3	6	392.5	4/21
UG40	Offshore Uganik[a]	-	0	-	0	-	0	6/30
DISTRICT TOTAL		**915 TONS**	**1,231.3**	**92**	**108.5**	**8**	**1,339.8**	
UYAK DISTRICT								
UY10	Offshore Uyak[a]	Closed	0	-	0	-	0	-
UY20	Harvester Island	Closed	0	-	0	-	0	-
UY30	Inner Uyak	Closed	0	-	0	-	0	-
UY31	Larsen Bay	Closed	0	-	0	-	0	-
UY32	Browns Lagoon	Closed	0	-	0	-	0	-
UY40	Zachar Bay	Closed	0	-	0	-	0	-
UY50	Spiridon Bay	Closed	0	-	0	-	0	-
DISTRICT TOTAL		**Closed**	**0**	**-**	**0**	**-**	**0**	**-**
ALITAK DISTRICT								
AL10	Outer Alitak	(Exploration)	0	-	0	-	0	6/30
AL20	Inner Alitak	(Exploration)	7.6	44	9.7	56	17.3	6/30
AL21	Inner Deadman Bay	150 Tons	10.5	85	1.9	15	12.4	6/30
AL22	Outer Deadman Bay	125 Tons	112.0	95	5.8	5	117.8	6/30
AL30	Sulua Bay	190 Tons	173.6	87	25.5	13	199.1	5/13
AL31	Portage Bay	75 Tons	69.7	90	7.6	10	77.3	6/12
AL40	Lower Olga/Moser Bay	20 Tons	0	-	0	-	0	6/30
AL41	North Upper Olga Bay	10 Tons	0	-	0	-	0	6/30
AL50	Upper Olga Bay	75 Tons	0	-	0	-	0	6/30
AL60	Geese/Twoheaded	15 Tons	0	-	0	-	0	6/30
DISTRICT TOTAL		**660 Tons**	**373.4**	**88**	**50.5**	**12**	**423.9**	

-Continued-

Table 4. (page 3 of 5)

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
STURGEON/HALIBUT DIST.								
SH10	Sturgeon/Halibut	(Exploration)	0	-	0	-	0	6/30
DISTRICT TOTAL		**0 Tons**	**0**		**0**		**0**	
EASTSIDE DISTRICT								
EA10	Kaiugnak	20 Tons	0	-	0	-	0	6/30
EA20	S.W. Sitkalidak Strait	20 Tons	0	-	0	-	0	6/30
EA21	Three Saints Bay	60 Tons	5.1	-	30.1	-	35.2	6/30
EA22	Newman Bay	40 Tons	0	-	2.4	100	2.4	6/30
EA23	W. Sitkalidak Strait	300 Tons	42.3	40	64.0	60	106.3	6/30
EA24	Barling Bay	50 Tons	28.3	50	28.2	50	56.5	5/13
EA30	E. Sitkalidak St.	290 Tons	152.0	39	238.6	61	390.6	5/24
EA31	Tanginak Anchorage	15 Tons	0	-	15.7	100	15.7	5/8
EA40	Outer Sitkalidak	(Exploration)	0	-	0	-	0	6/30
EA41	Boulder Bay	(Exploration)	0	-	0	-	0	6/30
EA42	Shearwater Bay	90 Tons	47.0	42	65.5	58	112.5	5/2
EA43	Outer Kiliuda Bay	80 Tons	132.7	99	0.1	1	132.8	4/28
EA44	Inner Kiliuda Bay	80 Tons	77.2	92	6.3	8	83.5	5/2
EA50	Outer Ugak Bay	60 Tons	123.1	91	12.1	9	135.2	5/17
EA51	Inner Ugak Bay	120 Tons	32.0	56	24.7	44	56.7	6/30
EA52	Pasagshak Bay	40 Tons	7.0	36	12.7	64	19.7	6/30
DISTRICT TOTAL		**1,265 Tons**	**646.7**	**56**	**500.4**	**44**	**1,147.1**	

-Continued-

Table 4. (page 4 of 5)

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
NORTHEAST DISTRICT								
NE10	Woman's Bay	100 Tons	0	-	9.2	100	9.2	6/30
NE20	Kalsin Bay	15 Tons	0	-	0	-	0	6/30
NE30	Middle Bay	20 Tons	0	-	0	-	0	6/30
NE40	Inshore Chiniak	10 Tons	0	-	0	-	0	6/30
NE50	Offshore Chiniak	(Exploration)	0	-	0	-	0	6/30
DISTRICT TOTAL		**145 Tons**	**0**	**-**	**9.2**	**100**	**9.2**	
INNER MARMOT DISTRICT								
IM10	Monashka Bay	(Exploration)	0	-	0	-	0	6/30
IM20	Anton Larsen Bay	Closed	0	-	0	-	0	-
IM30	Sharatin Bay	10 Tons	0	-	0	-	0	6/30
IM40	Kizhuyak Bay	15 Tons	5.0	35	9.1	65	14.1	6/30
IM50	Spruce Island	10 Tons	0	-	0	-	0	6/30
DISTRICT TOTAL		**35 Tons**	**5.0**	**35**	**9.1**	**65**	**14.1**	
NORTH MAINLAND DISTRICT								
NM10	Hallo Bay	(Exploration)	0	-	0	-	0	6/30
NM20	Inner Kukak Bay	65 Tons	0	-	26.3	100	26.3	6/30
NM30	Outer Kukak Bay[a]	-	0	-	0	-	0	6/30
NM40	Missak Bay	(Exploration)	0	-	0	-	0	6/30
DISTRICT TOTAL		**65 Tons**	**0**	**-**	**26.3**	**100**	**26.3**	
MID MAINLAND DISTRICT								
MM10	Inner Katmai Bay	65 Tons	20.6	100	0	-	20.6	6/30
MM20	Outer Katmai Bay[a]	-	0	-	0	-	0	6/30
MM30	Alinchak Bay	50 Tons	0	-	0	-	0	6/30
MM40	Puale Bay	(Exploration)	0	-	0	-	0	6/30
MM50	Portage Bay	(Exploration)	0	-	0	-	0	6/30
MM60	Outer Portage[a]	-	0	-	0	-	0	6/30
DISTRICT TOTAL		**115 Tons**	**20.6**	**100**	**0**	**-**	**20.6**	

-Continued-

Table 4. (page 5 of 5)

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
SOUTH MAINLAND DISTRICT								
SM10	Wide Bay	125 Tons	55.4	100	0	-	55.4	6/30
SM20	Lower Shelikof	(Exploration)	0	-	0	-	0	6/30
DISTRICT TOTAL		**125 Tons**	**55.4**	**100**	**0**	-	**55.4**	
	GRAND TOTAL	**4,480 Tons**	**3,836.7**	**83**	**767.8**	**17**	**4604.5**	

[a] These are offshore management units which are not expected to yield herring of sac-roe quality. These units are more applicable to the food/bait fishery. (See Herring Food/Bait Fishery Management Plan.)

Table 5. Age composition, by percent, of sac roe herring stocks, Kodiak Management Area, 1995.[a]

Area	Harvest (tons)	Percent at Age										
		2	3	4	5	6	7	8	9	10	11+	N
Malina Bay	55	-	-	5.7	12.5	3.8	62.6	7.9	1.5	1.1	4.9	265
Paramanof Bay	709	-	-	1.8	7.5	1.6	79.2	6.8	.5	-	2.5	438
Foul Bay	801	-	2.8	11.2	8.4	2.4	70.8	2.0	.4	-	2.0	250
Terror Bay	358	-	.8	5.6	11.3	1.6	76.6	1.6	.8	.8	.8	124
Village Islands	314	.6	1.8	6.0	15.0	2.4	70.1	2.4	.6	.6	.6	167
W. Uganik Passage	19	-	-	2.6	-	2.6	41.0	23.1	7.7	2.6	20.5	39
N.E. Arm Uganik	78	-	2.1	15.0	17.1	6.4	51.4	6.4	-	.7	.7	140
E. Arm Uganik	179	-	.7	6.3	17.6	3.5	66.2	4.9	-	-	.7	142
S. Arm Uganik	393	-	3.5	8.3	18.1	1.4	66.7	.7	.7	-	.7	144
Sulua Bay	199	-	-	26.9	9.0	5.1	38.5	20.5	-	-	-	78
Barling Bay	56	1.0	5.6	45.9	5.1	.5	4.1	32.1	1.0	2.0	2.6	196
W. Sitkalidak	106	1.4	3.6	17.3	4.1	.9	9.1	61.4	-	-	2.3	220
E. Sitkalidak	391	.7	6.4	22.6	10.2	.7	17.0	37.8	.5	.5	3.5	548
Outer Kiliuda Bay	133	-	.6	11.4	3.2	.6	13.3	70.3	-	-	.6	158
Inner Kiliuda Bay	84	.6	1.3	12.3	3.5	1.6	7.9	70.4	1.3	.6	.6	318
Shearwater Bay	113	-	6.3	25.6	11.9	1.3	12.5	38.1	1.3	-	3.1	160
Outer Ugak Bay	135	.7	.7	8.3	2.8	3.4	5.5	72.4	2.8	-	3.4	145
Inner Ugak Bay	57	-	-	1.3	1.3	13.0	2.6	74.0	2.6	1.3	3.9	77
Wide Bay	55	-	18.7	65.7	7.8	3.0	3.6	1.2	-	-	-	166
19 Mgmt. Units	4,235	.3	3.2	16.0	8.9	2.2	37.4	28.3	.7	.4	2.3	3,775

[a] Of the 32 management units exploited in 1995, samples were collected from 19 (59%). These 19 units yielded 4,235 tons or 92% of the management area's total harvest of 4,604 tons.

Table 6. Comparison of age, weight, and length (AWL) data from the sac roe herring fishery, Kodiak Management Area, 1989-1995.

Year	Age 2	3	4	5	6	7	8	9	10	11+	Total Avg.	N
% Age												
1989	.3	7.1	6.2	42.0	19.3	1.0	10.0	4.5	8.5	1.1		3,026
1990	.7	52.0	3.7	3.3	20.4	8.5	.6	3.0	2.6	5.2		7,672
1991	.05	26.3	49.4	2.6	1.4	8.7	5.2	.6	2.7	3.05		5,498
1992	.5	2.9	62.3	26.9	2.0	.7	2.0	1.2	.05	1.4		9,325
1993	.3	8.7	4.5	63.5	18.2	1.2	.2	1.6	.8	1.0		7,396
1994	.1	11.5	11.6	3.8	42.4	24.5	1.9	.7	2.0	1.5		6,965
1995	.3	3.2	16.0	8.9	2.2	37.4	28.3	.7	.4	2.3		3,775
Avg. Weights												
1989	60	85	130	176	224	251	269	271	276	284	199	2,569
1990	52	95	141	167	191	248	229	280	283	290	152	4,885
1991	53	81	137	169	191	221	255	261	301	292	153	4,239
1992	40	87	114	176	201	226	247	284	283	303	140	8,139
1993	58	94	134	144	203	226	226	250	281	310	156	6,852
1994	78	99	129	166	182	251	251	256	282	316	188	6,836
1995	49	109	146	166	200	208	264	270	270	310	209	3,763
Avg. Lengths												
1989	168	185	210	227	247	254	259	259	260	263	235	3,026
1990	158	188	214	226	232	250	245	261	258	260	212	7,671
1991	166	184	215	225	235	244	251	257	266	263	215	5,497
1992	162	194	202	231	240	250	254	264	265	268	214	9,323
1993	161	191	211	216	240	247	244	254	261	264	219	7,394
1994	175	194	211	227	231	253	252	253	259	267	231	6,965
1995	163	201	220	228	241	243	261	264	265	272	242	3,774

Table 7. Average weight in grams, by age, and management unit for the sac roe herring fishery, Kodiak Management Area, 1995.[a]

Area	Harvest (tons)	Average Weight at Age											
		2	3	4	5	6	7	8	9	10	11+	Avg.	N
Malina Bay	55	-	-	124	169	192	211	242	282	314	304	209	265
Paramanof Bay	709	-	-	121	161	188	210	222	249	-	271	207	437
Foul Bay	801	-	96	123	164	186	206	230	262	-	279	191	250
Terror Bay	358	-	65	111	162	169	201	226	245	253	261	191	124
Village Islands	314	59	95	138	159	202	194	214	204	348	225	185	167
W. Uganik Passage	19	-	-	160	-	143	201	247	280	255	326	242	39
N.E. Arm Uganik	78	-	125	127	148	165	184	176	-	175	185	166	140
E. Arm Uganik	179	-	94	139	150	162	194	194	-	-	234	181	142
S. Arm Uganik	393	-	88	139	155	150	196	184	217	-	290	180	143
Sulua Bay	199	-	-	143	166	214	215	259	-	-	-	200	77
Barling Bay	56	58	116	154	161	171	228	279	303	241	324	202	194
W. Sitkalidak	106	49	93	148	172	231	229	271	-	-	314	233	220
E. Sitkalidak	391	55	123	156	180	221	236	278	300	251	328	223	547
Outer Kiliuda Bay	133	-	118	160	186	221	239	269	-	-	288	249	158
Inner Kiliuda Bay	84	33	123	160	181	228	235	266	286	296	360	245	318
Shearwater Bay	113	-	129	163	182	231	247	272	281	-	366	224	160
Outer Ugak Bay	135	36	96	142	164	217	231	251	265	-	316	237	139
Inner Ugak Bay	57	-	-	182	161	229	272	250	214	282	325	248	77
Wide Bay	55	-	96	133	164	229	221	251	-	-	-	136	166
19 Mgmt. Units	4,235	49	109	146	166	200	208	264	270	270	310		3,763

[a] Of the 32 management units exploited in 1995, samples were collected from 19 (59%). These 19 units yielded 4,235 tons or 92% of the management area's total harvest of 4,604 tons.

Table 8. Average length in millimeters, by age, and management unit, for the sac roe herring fishery, Kodiak Management Area, 1995.[a]

Area	Harvest (tons)	Average Length at Age											
		2	3	4	5	6	7	8	9	10	11+	Avg.	N
Malina Bay	55	-	-	210	230	237	244	254	268	271	268	243	265
Paramanof Bay	709	-	-	209	226	236	242	247	256	-	258	241	438
Foul Bay	801	-	195	213	231	244	244	256	267	-	262	239	250
Terror Bay	358	-	181	205	232	233	243	251	263	265	258	240	124
Village Islands	314	177	188	216	222	242	236	239	250	275	249	232	167
W. Uganik Passage	19	-	-	228	-	231	245	257	267	255	274	255	39
N.E. Arm Uganik	78	-	200	211	220	229	236	235	-	240	237	228	140
E. Arm Uganik	179	-	201	219	225	226	236	242	-	-	247	233	142
S. Arm Uganik	393	-	187	213	222	217	236	233	264	-	266	230	144
Sulua Bay	199	-	-	224	229	252	250	261	-	-	-	243	78
Barling Bay	56	172	209	225	231	228	256	266	267	266	282	241	195
W. Sitkalidak	106	157	194	220	228	249	248	261	-	-	277	248	220
E. Sitkalidak	391	166	209	224	234	247	257	264	263	264	278	247	548
Outer Kiliuda Bay	133	-	195	224	231	253	252	259	-	-	260	253	158
Inner Kiliuda Bay	84	150	207	227	236	255	254	264	266	270	285	256	318
Shearwater Bay	113	-	216	229	235	251	258	264	274	-	295	249	160
Outer Ugak Bay	135	155	198	225	224	253	253	259	261	-	278	254	145
Inner Ugak Bay	57	-	-	231	223	247	261	255	258	268	270	254	77
Wide Bay	55	-	191	211	226	249	250	257	-	-	-	212	166
19 Mgmt. Units	4,235	163	201	220	228	241	243	261	264	265	272		3,774

[a] Of the 32 management units exploited in 1995, samples were collected from 19 (59%). These 19 units yielded 4,235 tons or 92% of the management area's total harvest of 4,604 tons.

Table 9. Historical food/bait herring harvest for the Kodiak Management Area, 1912-1995.

YEAR	TONS	YEAR	TONS	YEAR	TONS
1912	20.0	1940	22677.0	1968	15.4
1913	0.0	1941	40083.5	1969	11.0
1914	0.0	1942	16791.0	1970	7.5
1915	0.0	1943	35352.0	1971	44.2
1916	70.0	1944	26835.0	1972	49.8
1917	137.9	1945	31114.0	1973	178.0
1918	118.4	1946	47505.9	1974	40.1
1919	259.7	1947	50743.0	1975	5.2
1920	45.9	1948	46428.0	1976	No Data
1921	944.9	1949	0.0	1977	No Data
1922	1482.6	1950	44132.5	1978	398.9
1923	321.5	1951	4299.0	1979	124.8
1924	4823.0	1952	1389.0	1980	380.7
1925	9997.0	1953	725.0	1981	18.0
1926	2680.9	1954	0.0	1982	326.0
1927	2592.9	1955	0.0	1983	33.4
1928	625.0	1956	13524.0	1984	123.0
1929	No Data	1957	21218.5	1985	102.0
1930	622.0	1958	1711.0	1986	213.0
1931	1000.0	1959	3831.0	1987	217.1
1932	3594.0	1960	0.0	1988	340.2
1933	2312.5	1961	0.0	1989	344.6
1934	60000.0	1962	0.0	1990	312.6
1935	No Data	1963	0.0	1991	215.3
1936	24748.0	1964	309.8	1992	311.5
1937	27659.3	1965	35.0	1993	837.0
1938	24522.0	1966	198.0	1994	677.0
1939	38600.5	1967	300.3	1995	276.0[a]

[a] Preliminary harvest numbers the season is in progress.

Table 10. Commercial food/bait herring age-weight-length summary of harvest for the Shelikof Strait, 1995/96.

Sample Period	Age (years)	Sex				Percent of	Weight			Std. Length				
		Male	Female	Unknown	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	Tons	Adj. Tons
October	0	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	55	45	3	103	15.9	90	16.1	103	183	10.2	103	20.59	48.17
	3	80	77	-	157	24.2	132	19.3	155	205	9.1	157	46.08	73.42
	4	17	16	-	33	5.1	166	29.6	32	220	15.9	33	12.21	15.43
	5	33	38	-	71	11.0	210	31.2	71	235	10.5	71	33.20	33.20
	6	27	20	-	47	7.3	240	28.1	47	244	9.4	47	25.06	25.06
	7	81	98	-	179	27.6	251	28.4	176	247	9.2	179	99.95	99.95
	8	13	13	-	26	4.0	279	31.0	25	255	10.6	26	16.15	16.15
	9	5	1	-	6	.9	298	38.6	6	260	10.0	6	3.98	3.98
	10	6	1	-	7	1.1	304	31.1	6	260	14.3	7	4.73	4.73
	11+	10	9	-	19	2.9	341	37.3	19	270	9.6	19	14.43	14.43
Period total		327	318	3	648	100.0	191	74.7	640	225	27.7	648	276.38	334.51

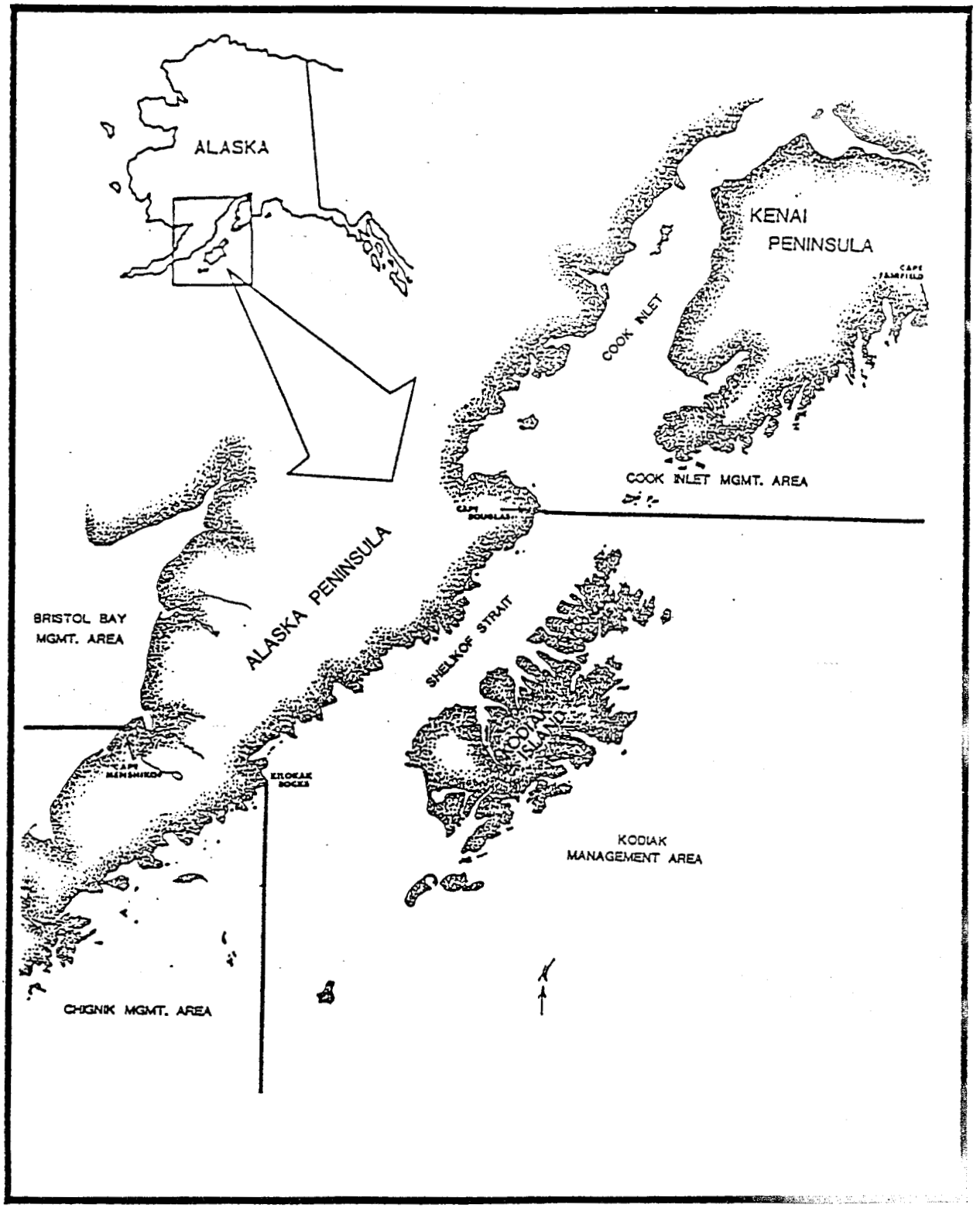


Figure 1. Map of southwestern Alaska emphasizing the Kodiak Management Area and it's relationship to surrounding management areas.

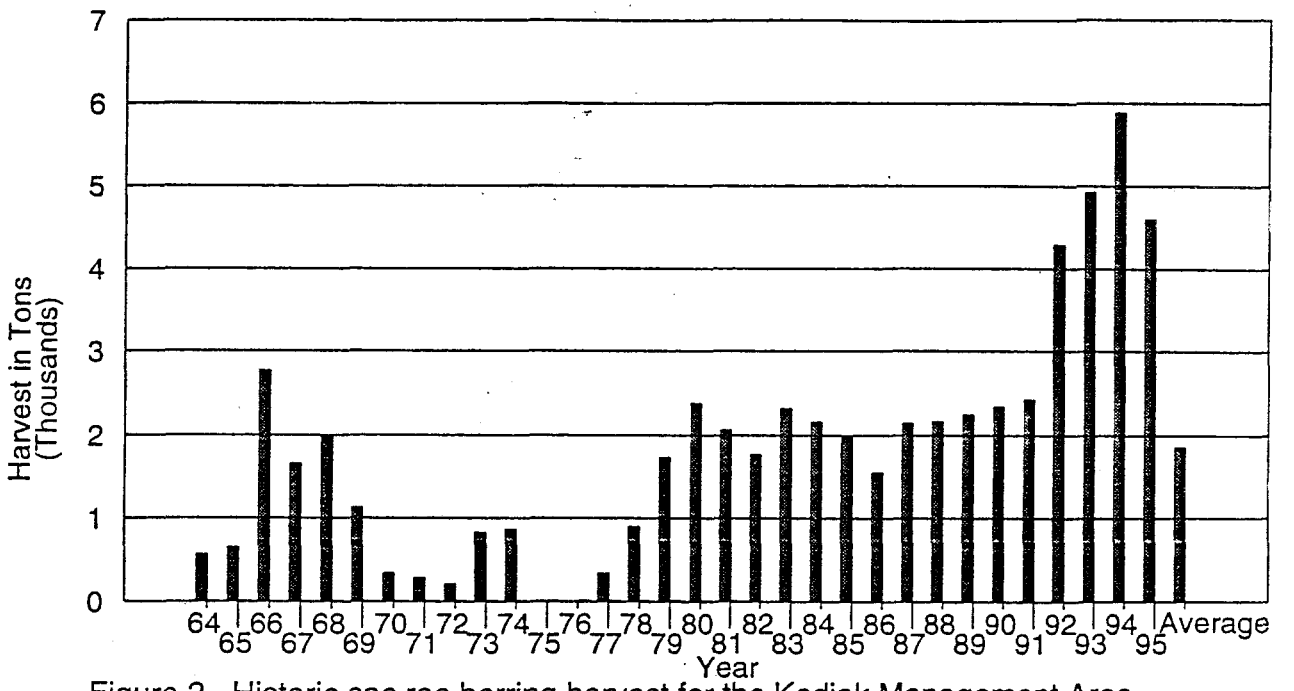


Figure 2. Historic sac roe herring harvest for the Kodiak Management Area, 1964-1995.

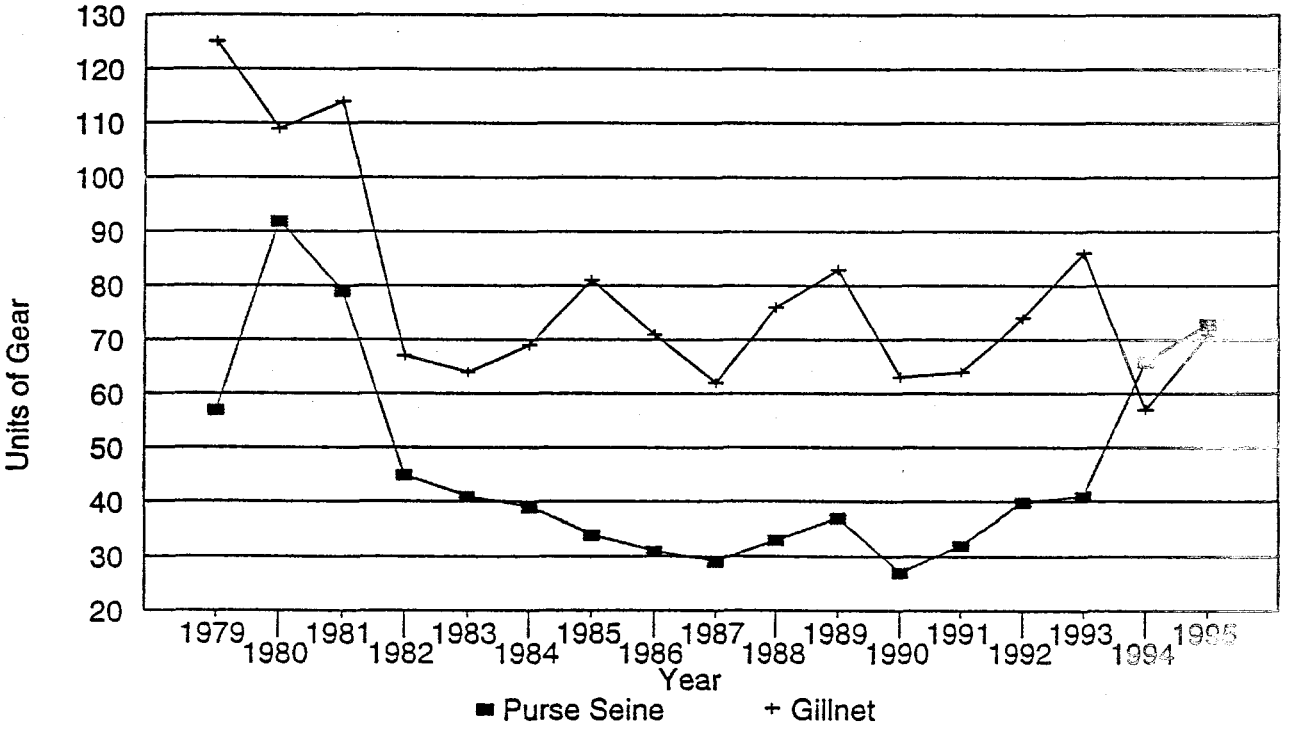


Figure 3. Number of units of each gear type which made landings in the Kodiak Management Area sac roe herring fishery, 1979-1995.

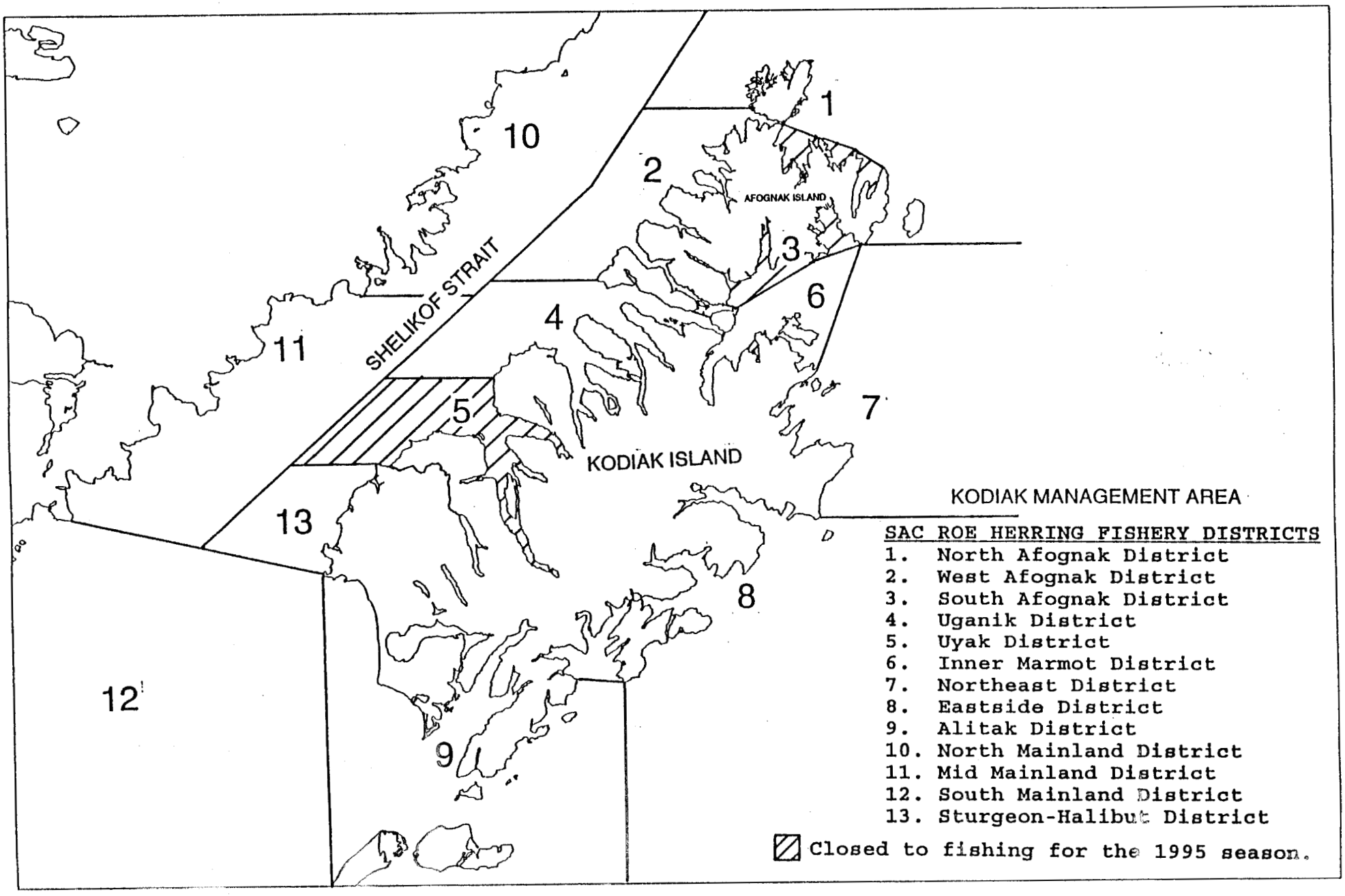


Figure 4. Sac roe herring fishery districts for the Kodiak Management Area, 1995.

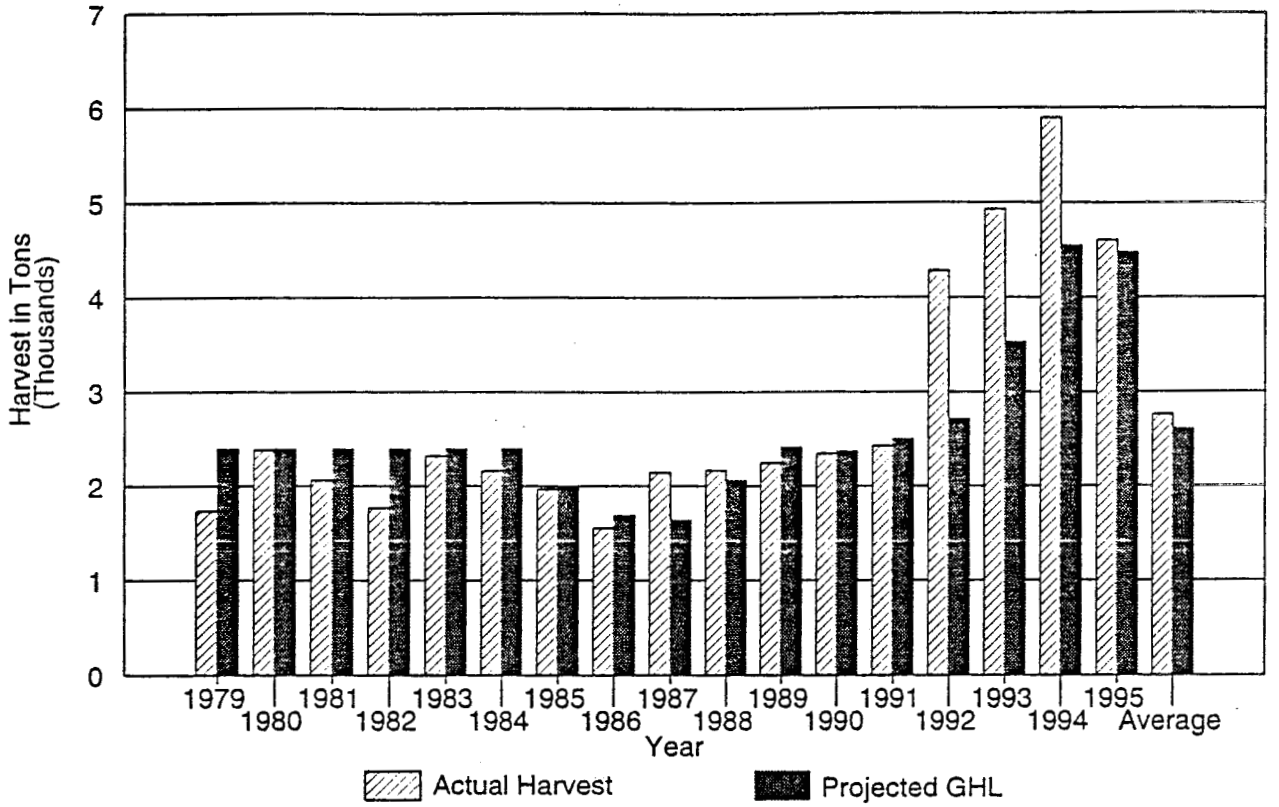


Figure 5. Comparison of the projected guideline harvest level (GHL) to the actual sac roe herring harvest in the Kodiak Management Area, 1979-1995.

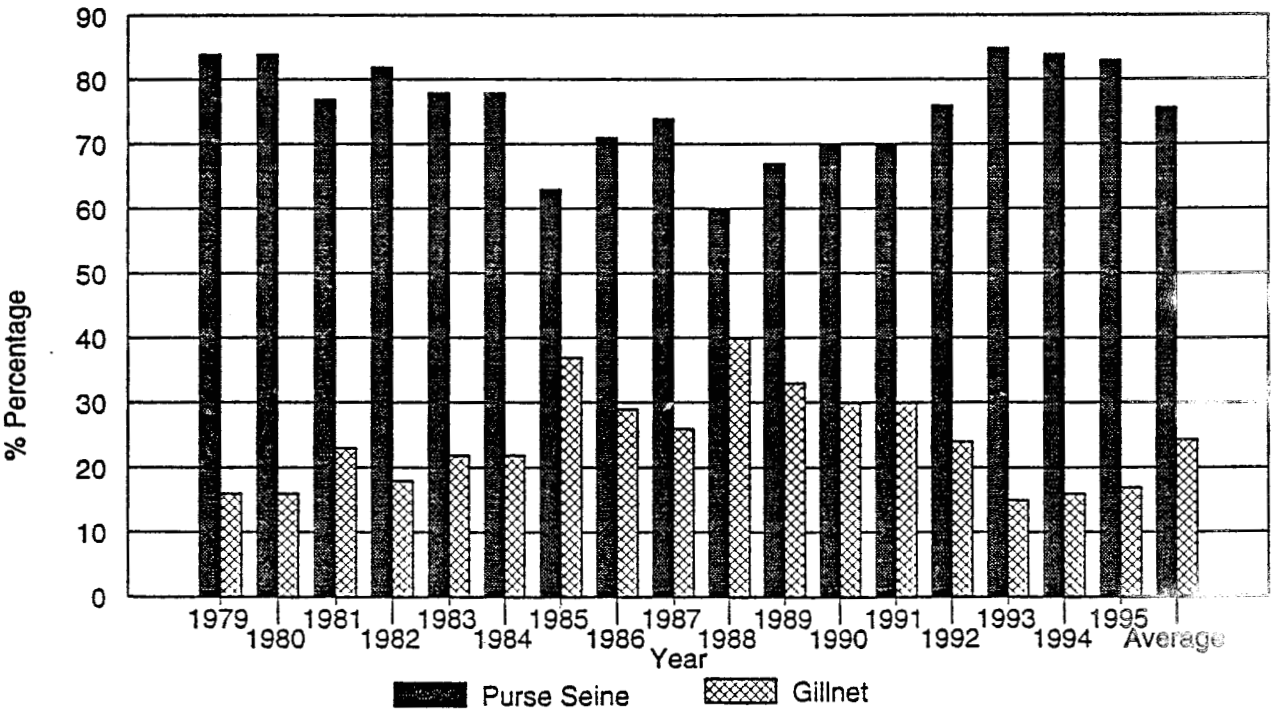


Figure 6. Percent of sac roe herring harvest by gear type for the Kodiak Management Area, 1979-1995.

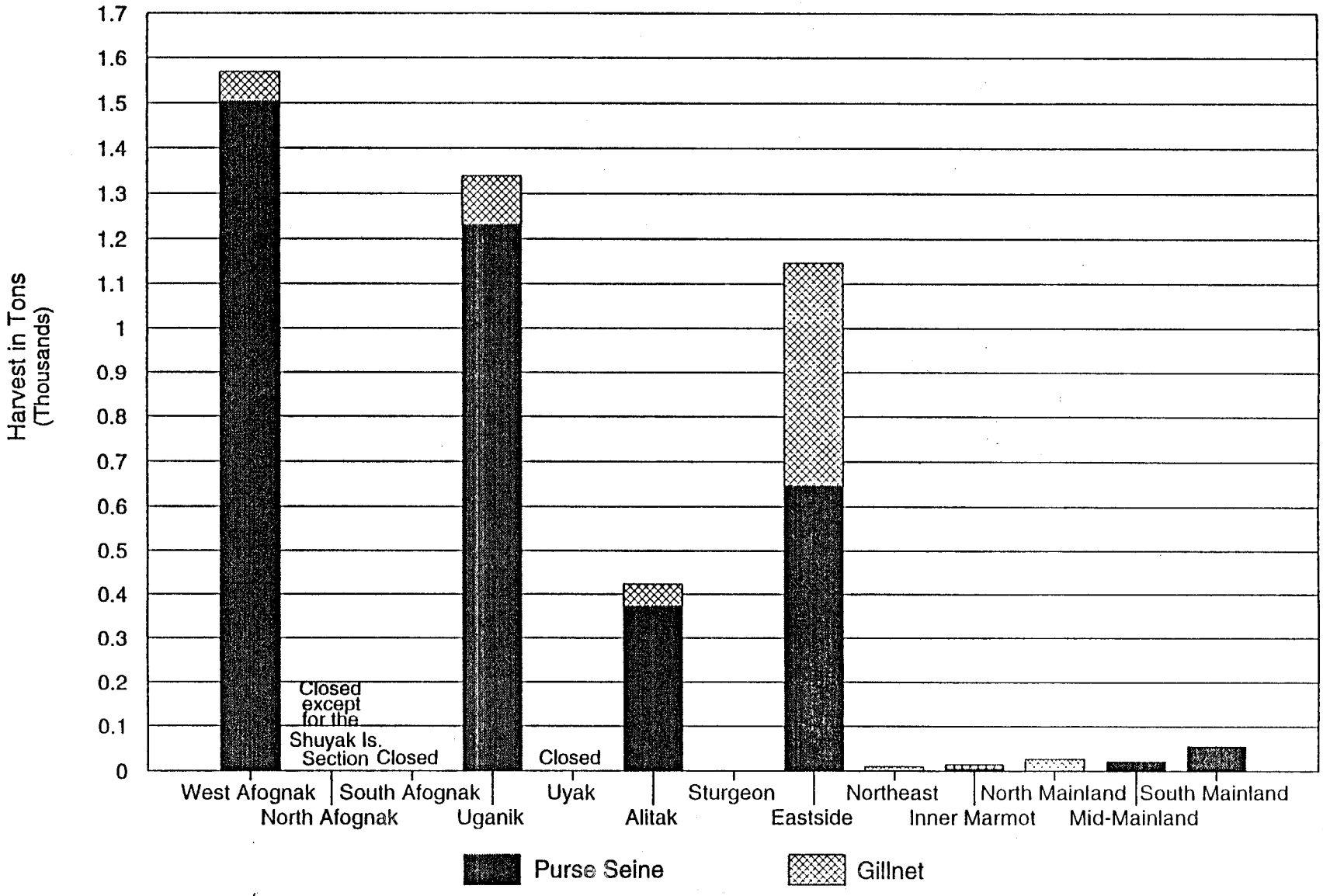


Figure 7. Sac roe herring harvest by district and gear type for the Kodiak Management Area, 1995.

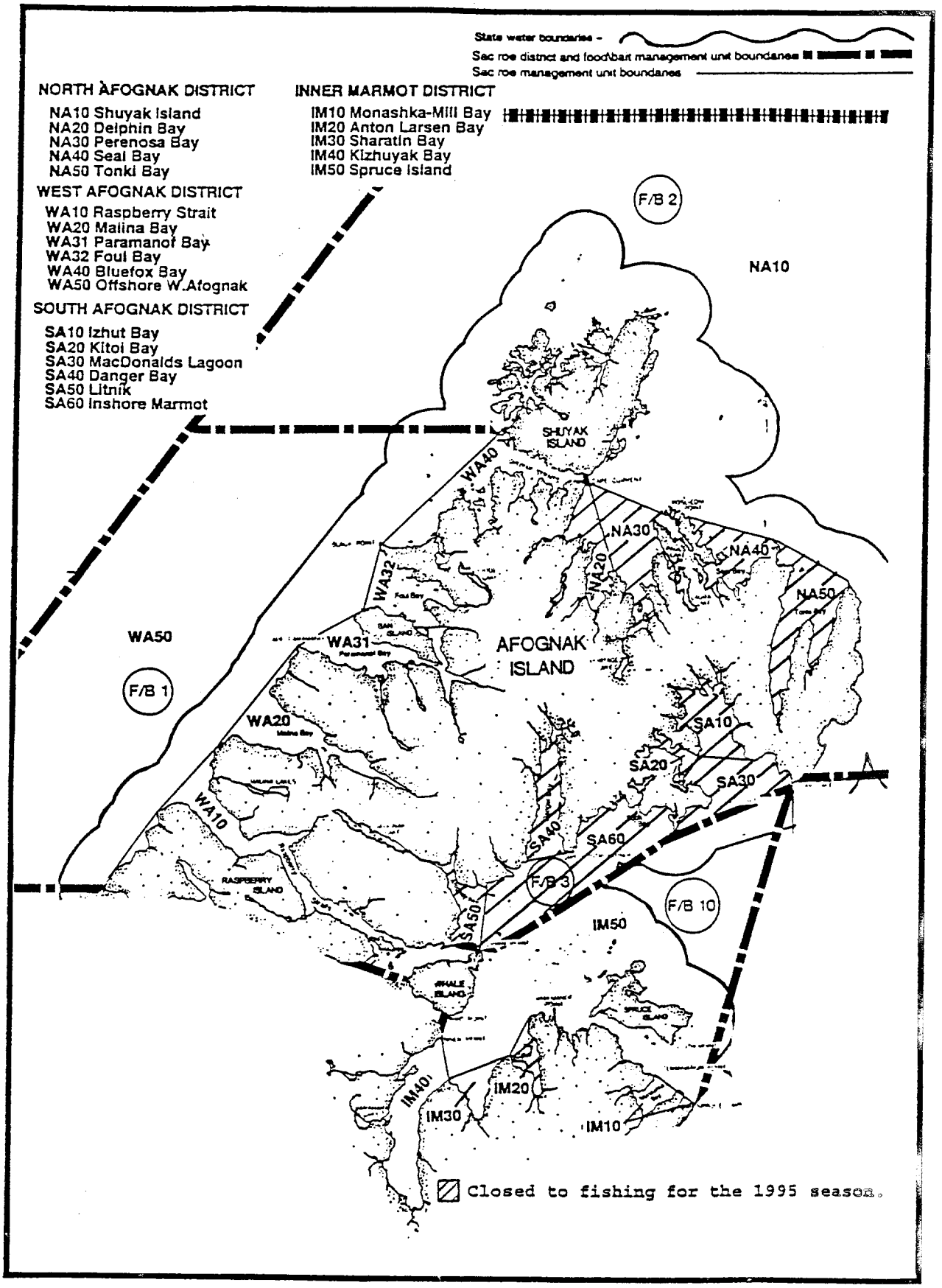


Figure 8. North Afognak, West Afognak, South Afognak, and Inner Marmot Districts and management units for the sac roe herring fishery, Kodiak Management Area, 1995.

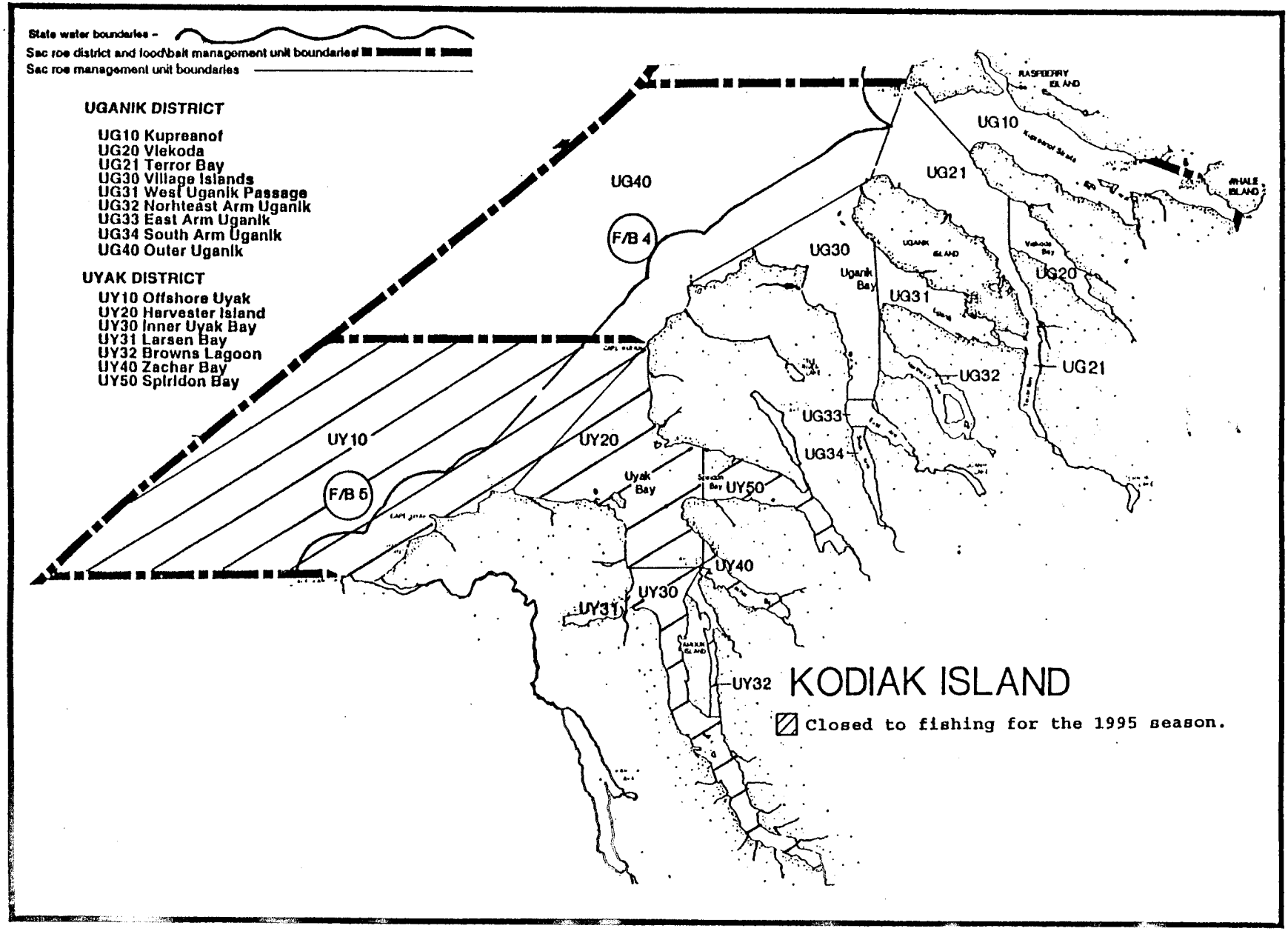


Figure 9. Uganik and Uyak Districts and management units for the sac roe herring fishery, Kodiak Management Area, 1995.

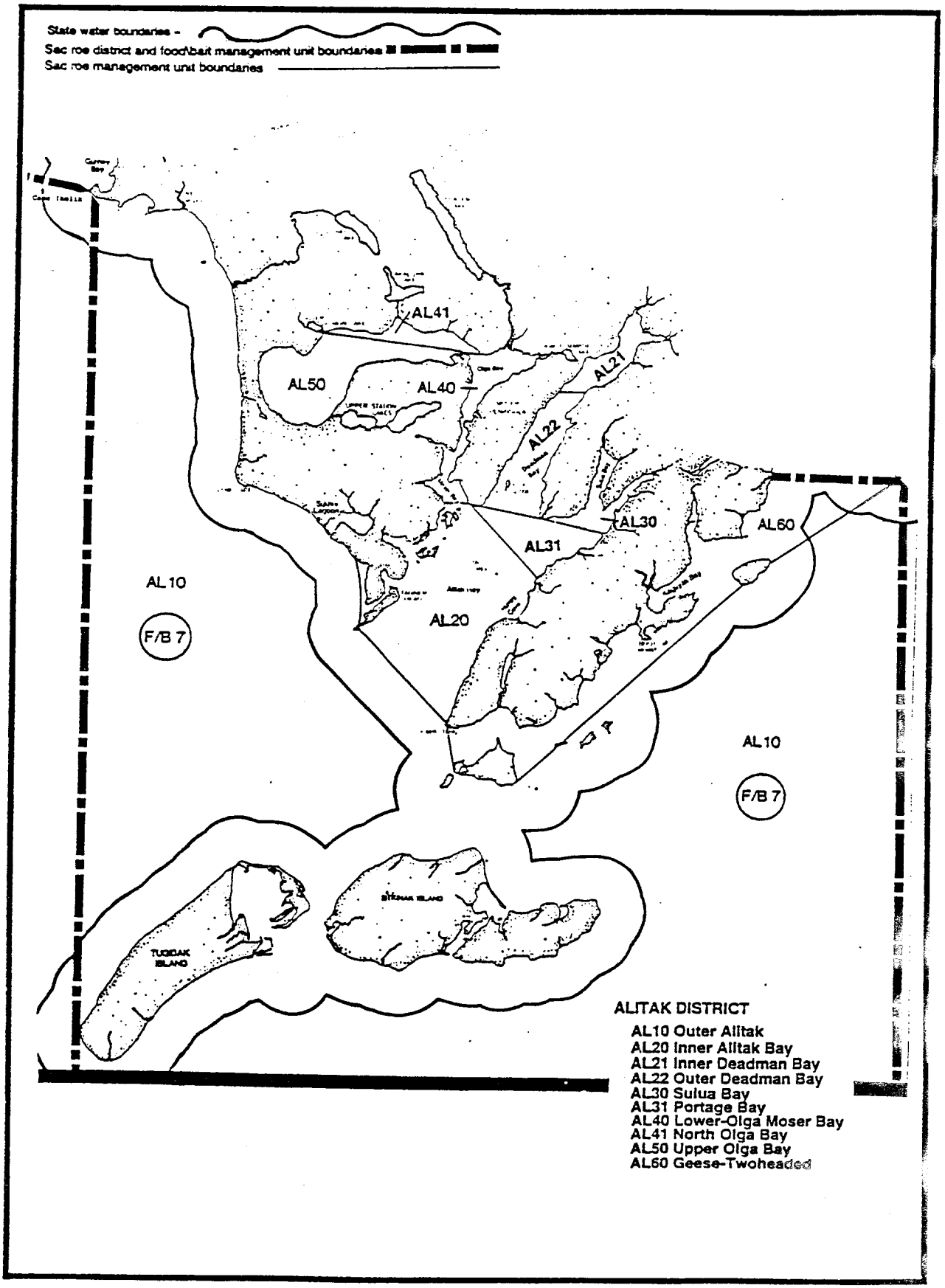


Figure 10. Alitak District and management units for the sac roe herring fishery, Kodiak Management Area, 1995.

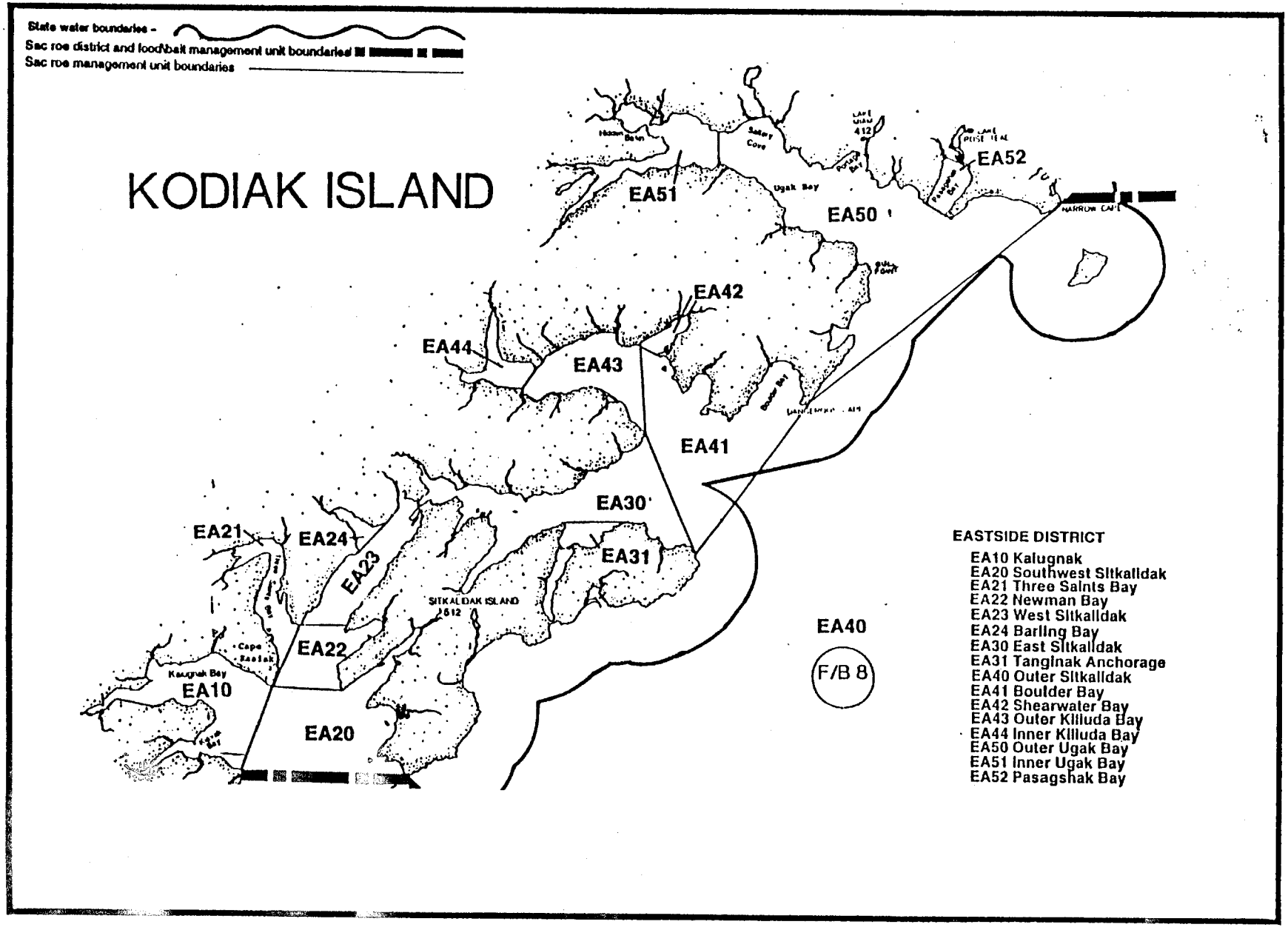


Figure 11. Eastside District and management units for the sac roe herring fishery, Kodiak Management Area, 1995.

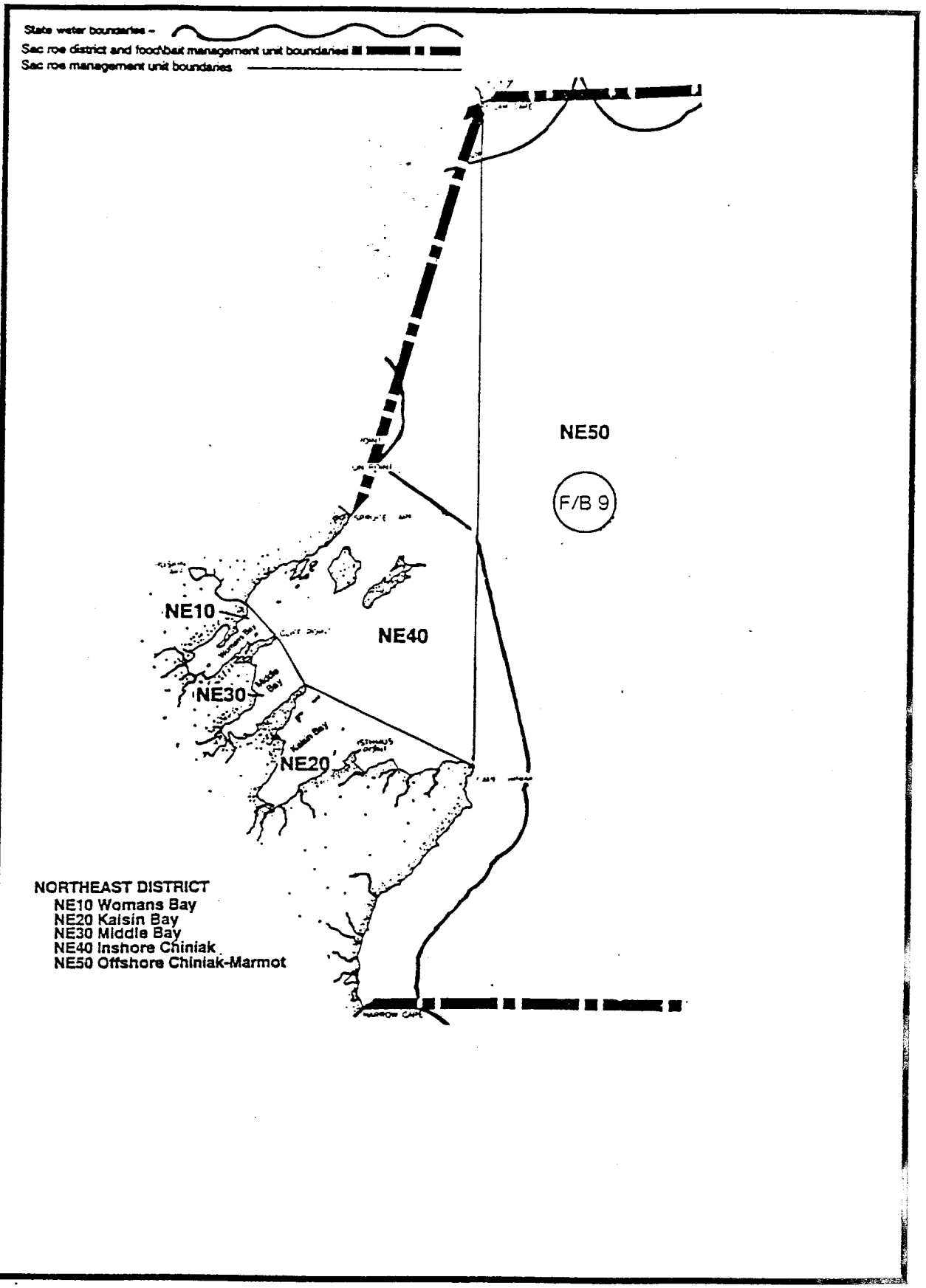


Figure 12. Northeast District and management units for the sac roe herring fishery, Kodiak Management Area, 1995.

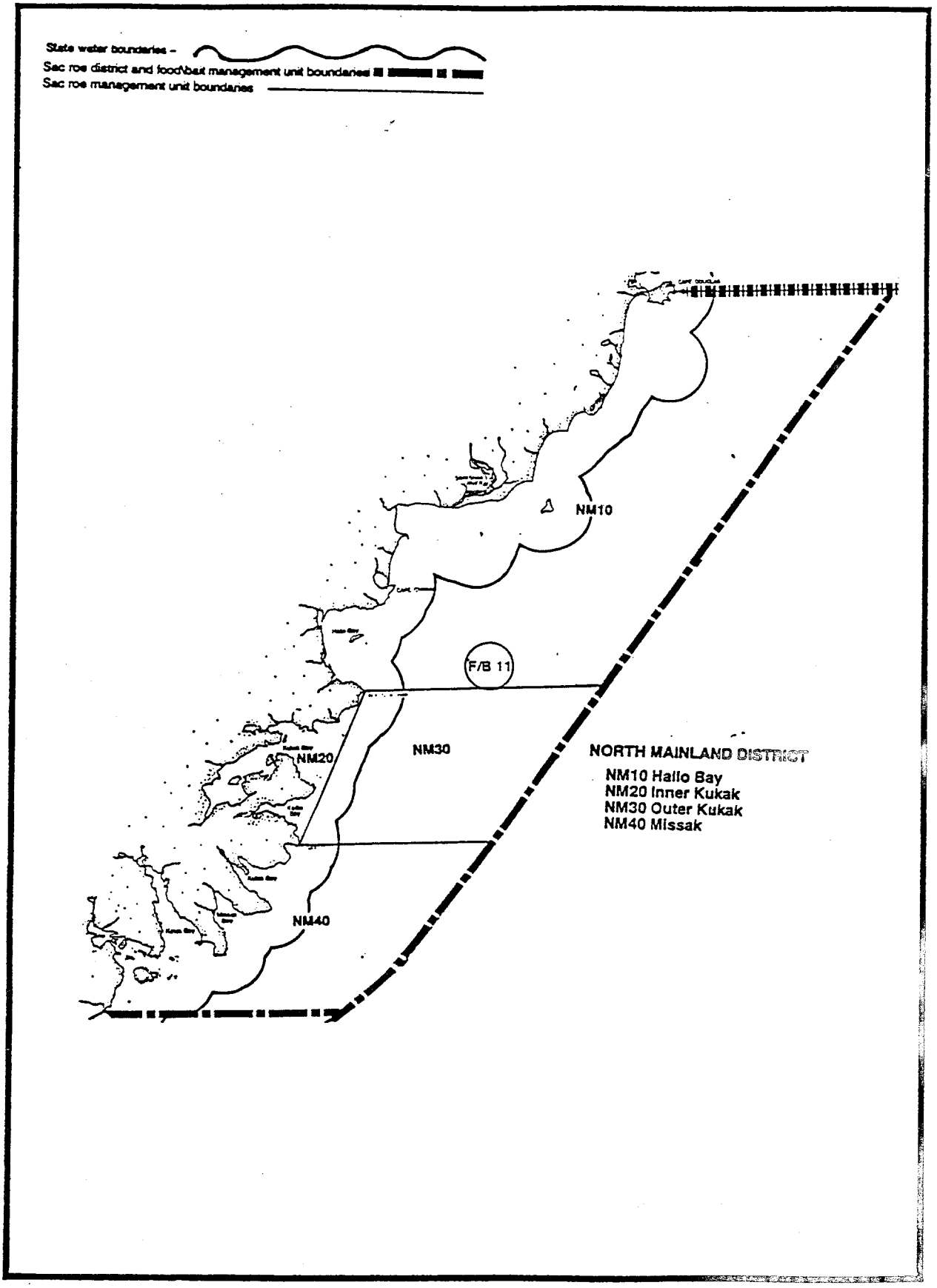


Figure 13. North Mainland District and management units for the sac roe herring fishery, Kodiak Management Area, 1995.

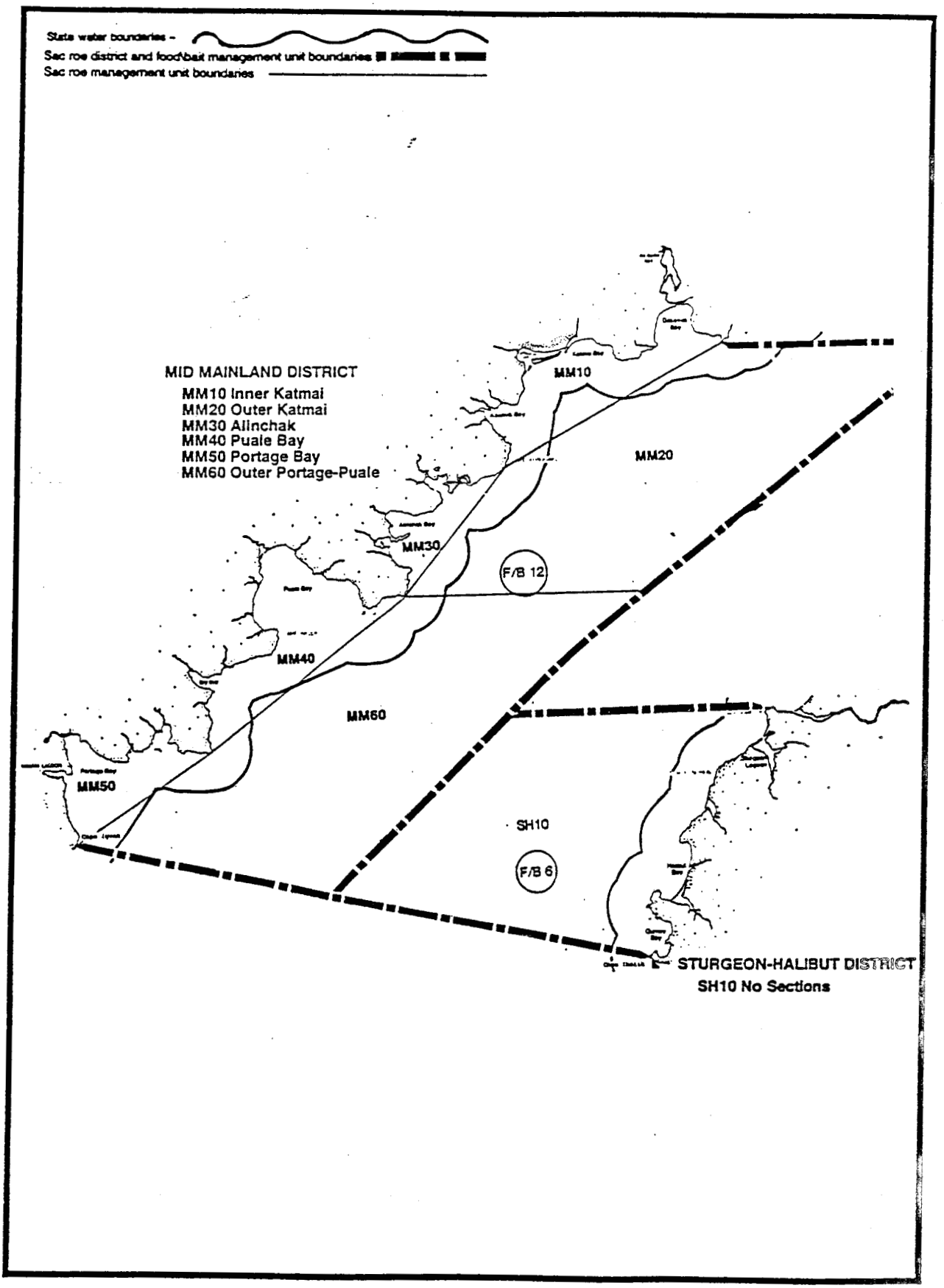


Figure 14. Mid Mainland and Sturgeon-Halibut Districts and management units for the sac roe herring fishery, Kodiak Management Area, 1995.

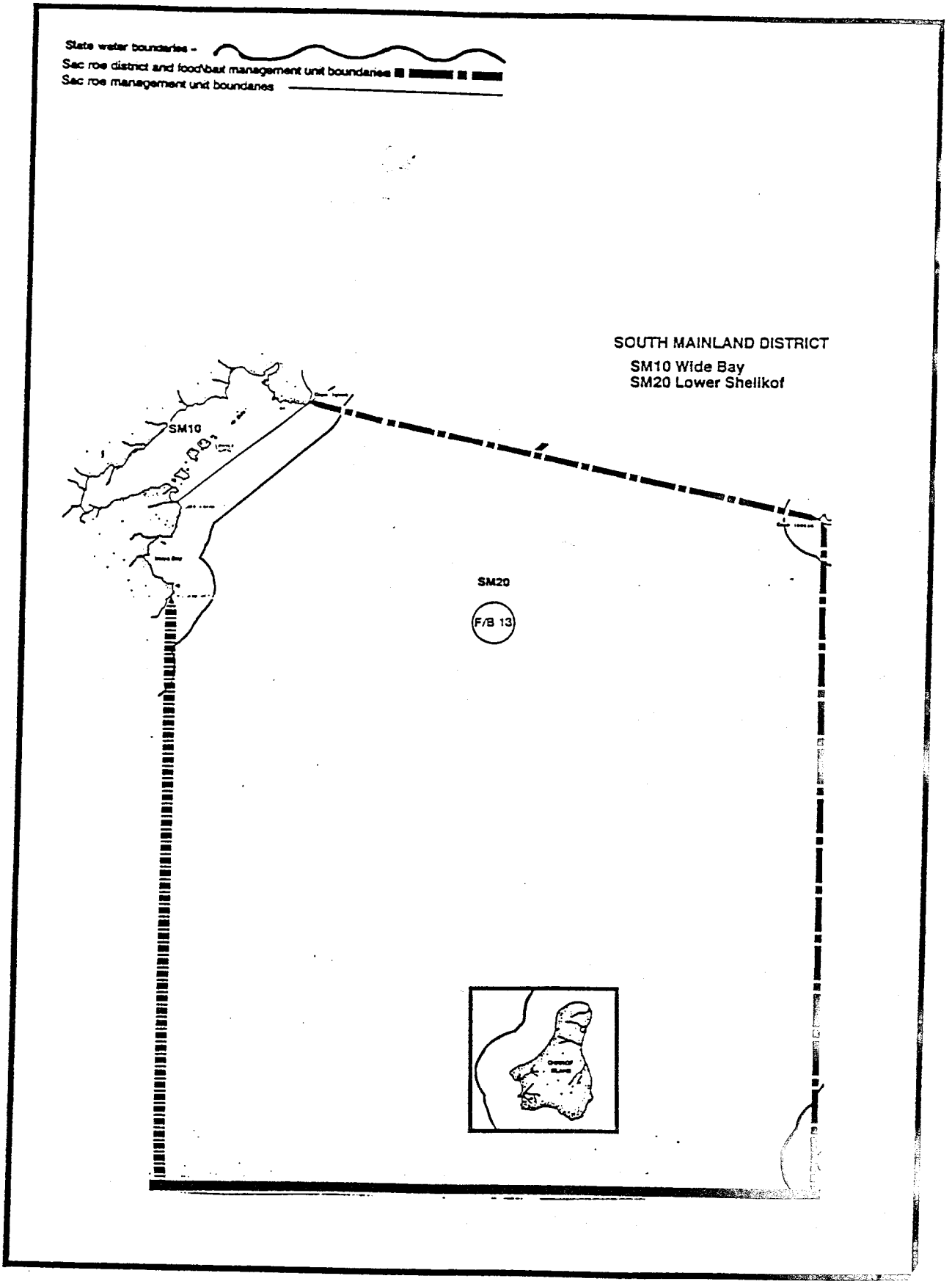
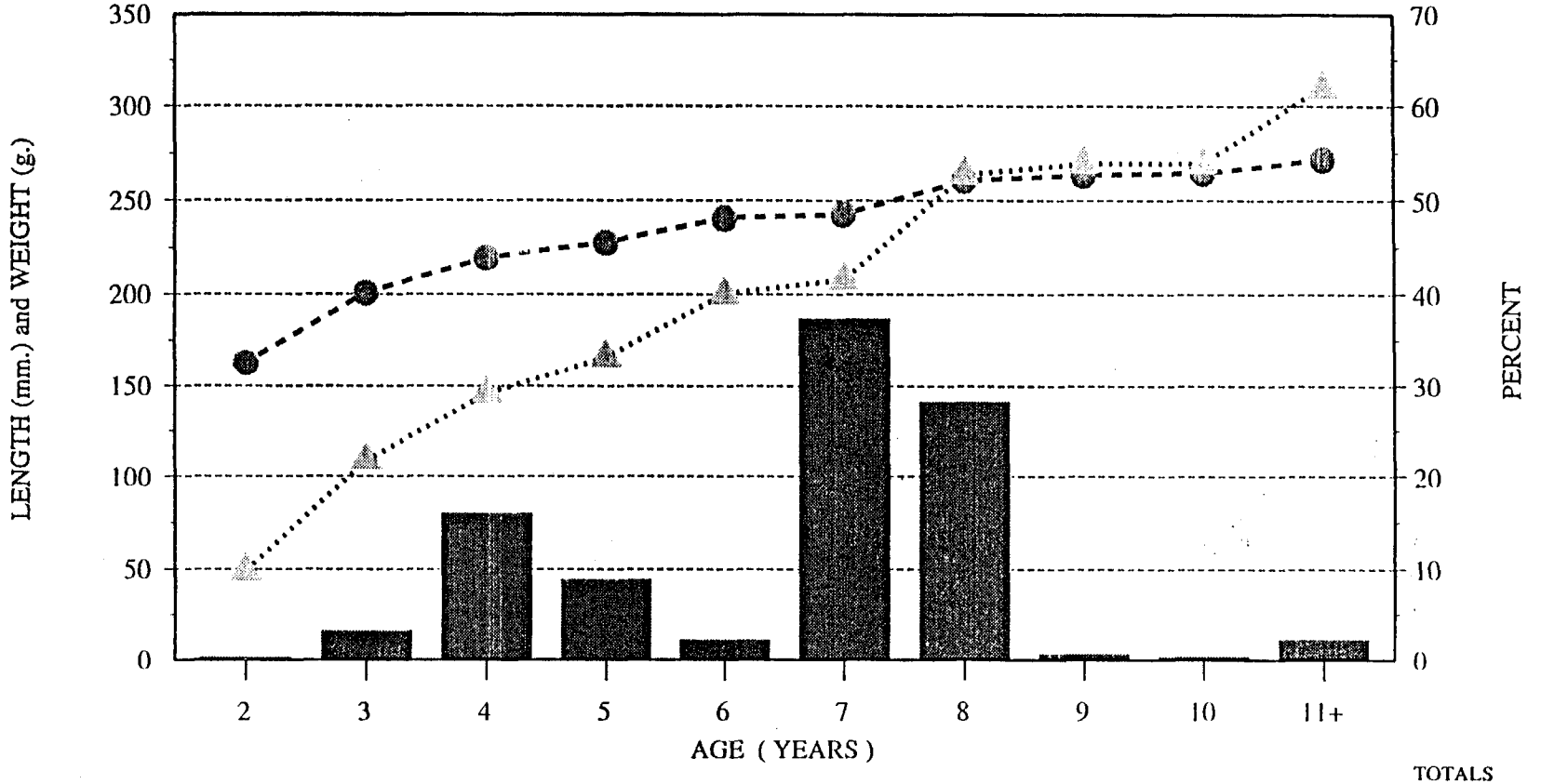
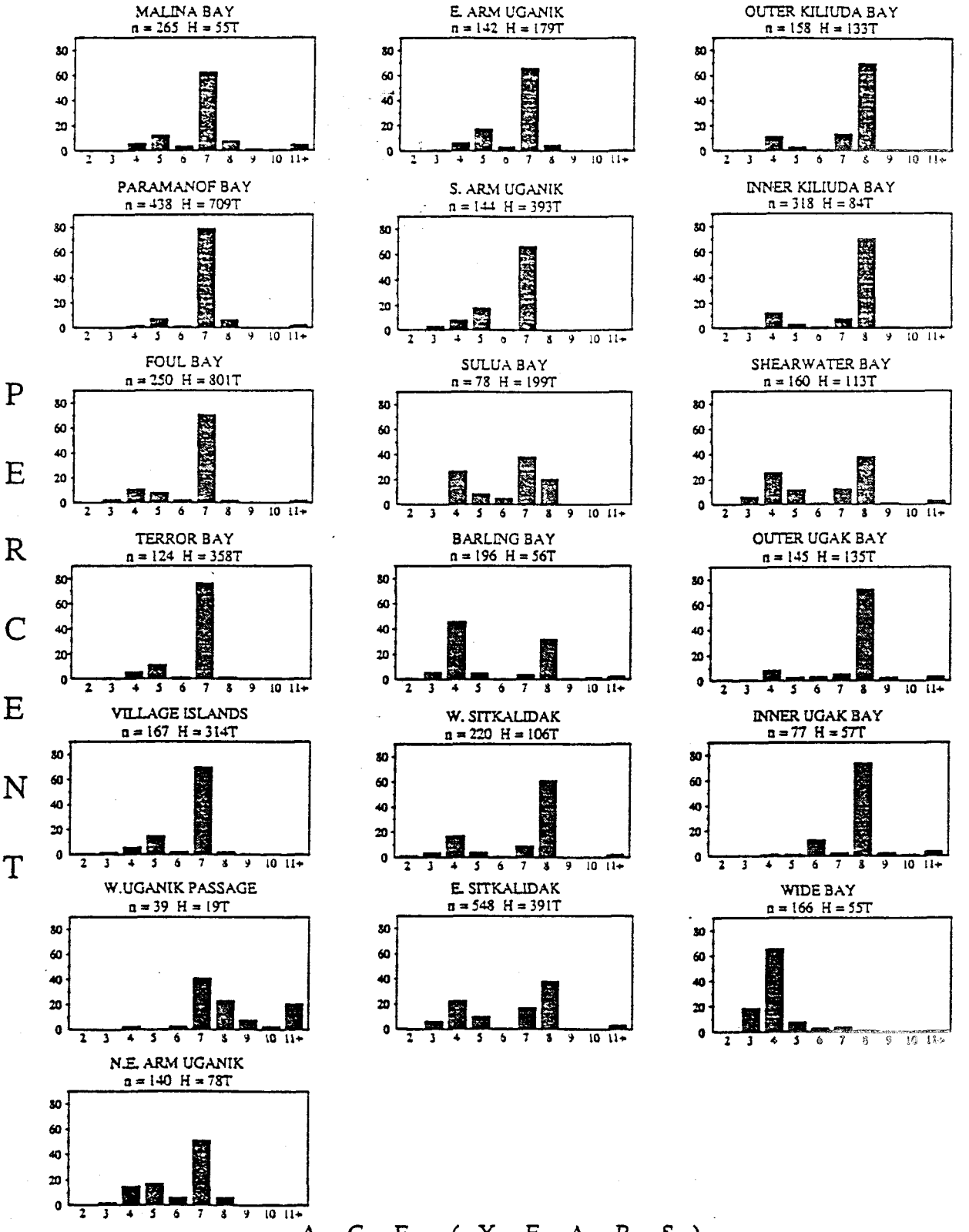


Figure 15. South Mainland District and management units for the sac roe herring fishery, Kodiak Management Area, 1995.



												TOTALS
N		13	121	604	336	85	1413	1069	30	17	87	3775
% BY AGE	■	0.3	3.2	16.0	8.9	2.2	37.4	28.3	0.7	0.4	2.3	100%
N		13	121	603	335	84	1412	1062	30	16	87	3763
AVG. WEIGHT (g.)	▲	49	109	146	166	200	208	264	270	270	310	209
N		13	121	604	336	85	1413	1069	30	16	87	3774
AVG. LENGTH (mm.)	●	163	201	220	228	241	243	261	264	265	272	242

Figure 16. Summary of sac roe herring average length and weight at age, and percent of each age class in commercial catch samples for the Kodiak Management Area, 1995.



1/ ALL SAMPLES WERE COLLECTED FROM COMMERCIAL SEINE CATCHES BY ADF&G PERSONNEL.

Figure 17. Age frequency (%) by management unit for the sac roe herring fishery, Kodiak Management Area, 1995.

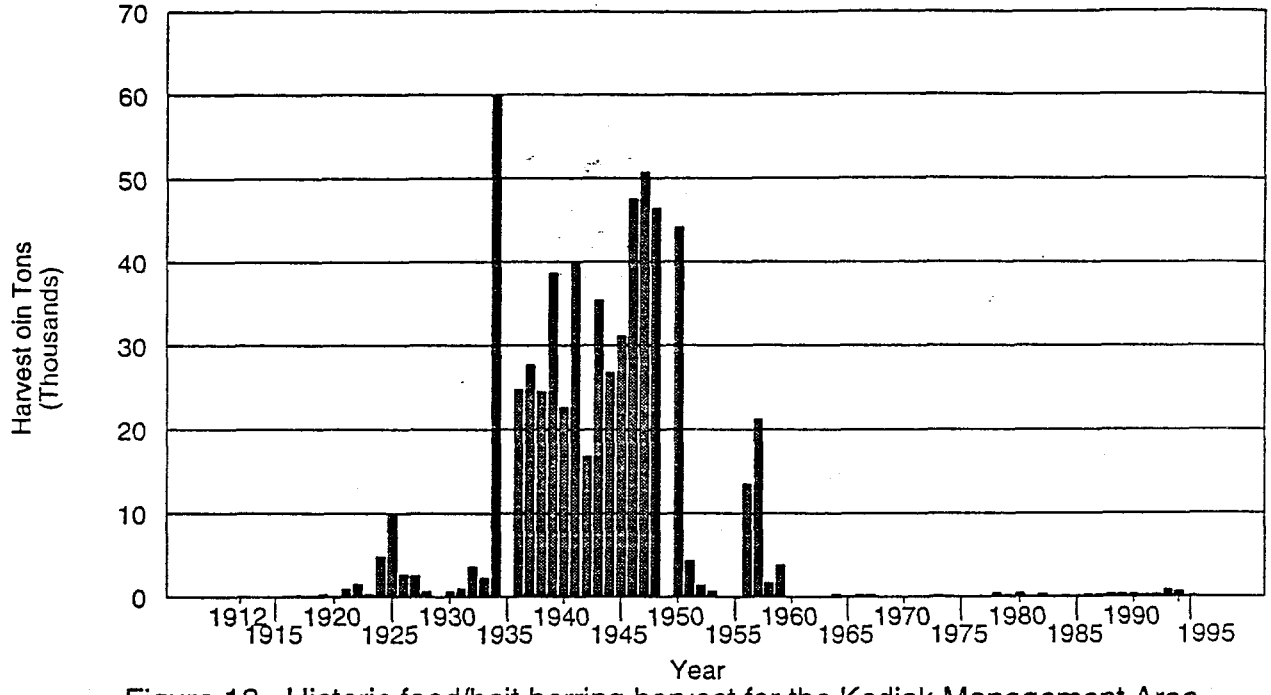


Figure 18. Historic food/bait herring harvest for the Kodiak Management Area 1912-1995.[1]

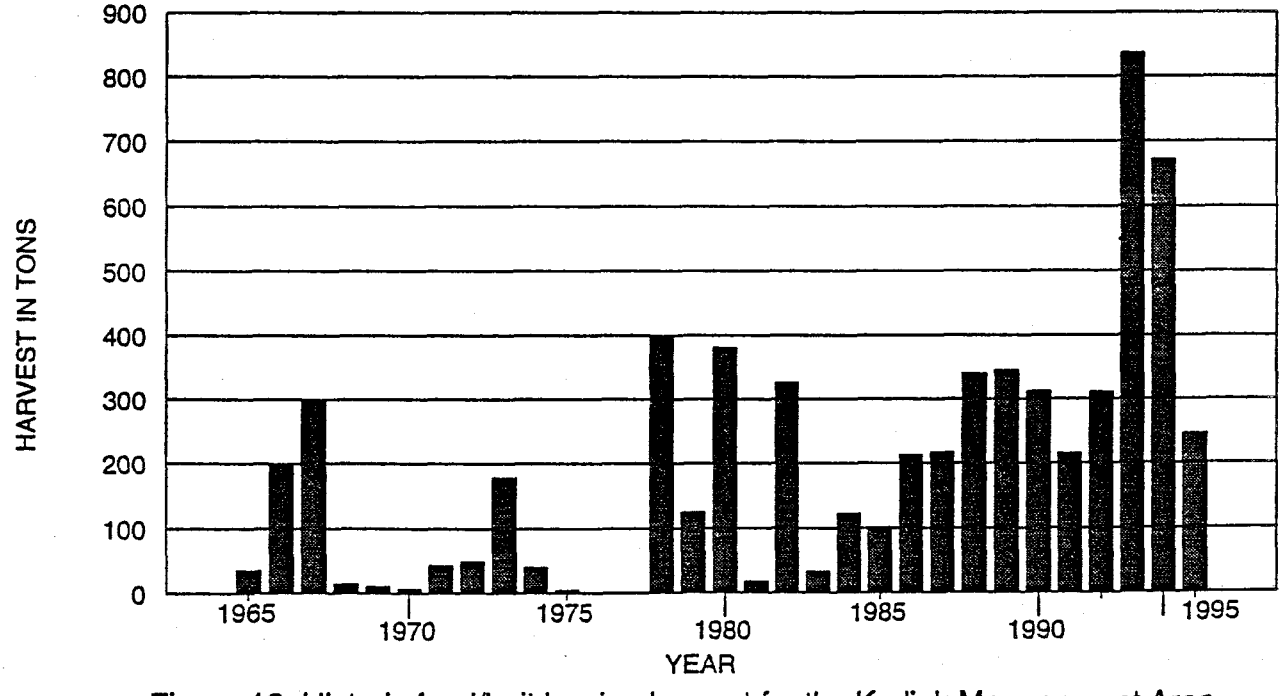


Figure 19. Historic food/bait herring harvest for the Kodiak Management Area 1965-1995.[1]

[1] Harvest through November 3, 1995 season in progress.

APPENDIX

KODIAK MANAGEMENT AREA
SAC ROE HERRING HARVEST STRATEGY, 1995

By

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and
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Regional Information Report[1] No. 4K95-15

Alaska Department of Fish and Game
Commercial Fisheries Management and Development Division
211 Mission Road
Kodiak, Alaska 99615

March 1995

[1]The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

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Appendix

OVERVIEW

This document is intended to provide commercial fishermen and buyers with pertinent information the Alaska Department of Fish and Game (ADF&G) will use to manage the Kodiak Management Area (KMA) commercial sac roe herring fishery.

The 1995 Kodiak sac roe herring fishery guideline harvest level (GHL) is 4,480 tons. The season will begin at 12:00 noon on April 15 and will close at 12:00 noon on June 30. Fishing periods will be 24-hours in duration starting at 12:00 noon on odd numbered days and ending at 12:00 noon on even numbered days. **Depending on effort, harvest rates, and ADF&G's ability to monitor the fishery, the length of fishing periods during the first two weeks of the season may be reduced. Any changes to the "normal" 24-hour periods will be announced by emergency order.**

The KMA sac roe herring fishery is currently managed within 83 management units. Historic herring harvests have occurred within 65 of these units and each unit is treated as an individual herring stock. Additionally, there are 13 exploratory management units which potentially support sac roe herring stocks and 5 management units located offshore that lack habitat suitable for spawning.

GHL's are established for each of the 65 management units. Inseason emergency order closures will occur as the GHL for each unit is achieved. Unit closure may also be implemented prior to attaining the GHL if fishery performance indicates that stock status is weaker than expected.

All inseason emergency order closures or reopenings will be broadcast on 4.125 mhz following the daily marine weather broadcasts at 8:00 a.m. and 6:00 p.m., also from (April 15- May 1) at 11:00 p.m. News releases will be available both inside and outside the Kodiak ADF&G building. Additionally, the most current closure announcements will be available 24-hours a day on the ADF&G record-a-phone at 486-4559.

All herring buyers/processors and all tender operators are required to register at the Kodiak ADF&G office before starting operations in the Kodiak Area. (Fishing vessels are not required to register.)

To prevent waste, permit holders are encouraged to check with their markets prior to fishing to determine acceptable minimum size/weight and roe percentages. All herring harvested during the sac roe season which are sold as bait or discarded due to quality problems will be included as part of the total sac roe herring harvest.

INTRODUCTION

The Kodiak Management Area (KMA) sac roe herring fishery has occurred annually since 1964, (Table 1). This fishery was an open-to-entry fishery from 1964 to 1980, under a moratorium to new entries from 1981 to 1984, and is designated a limited entry fishery since 1985.

Since 1964 the harvest has averaged approximately 1,774 (short) tons. Since 1979 the annual harvest has averaged about 2,651 tons and has provided a stable fishery with harvests ranging from 1,558 tons in 1986 to 5,893 in 1994, (Table 2). In 1994 the ex-vessel value of this fishery was estimated at $5.0 million dollars.

This fishery targets on individual herring stocks immediately prior to spawning to ensure the greatest roe development and maximum roe recovery. Annual roe recovery for this fishery averages 10%.

GENERAL HARVEST POLICY

This harvest strategy will outline the criteria used to manage the KMA sac roe herring fishery. The commercial fishery is intended to occur in an orderly fashion, with minimal waste of the resource and within conservation limits as determined by ADF&G. Consequently, ADF&G will manage the fishery per the statewide general herring guideline harvest policy which provides for catches in traditional inshore areas, for the greatest roe recovery, and not to exceed a 20% exploitation rate on the available spawning biomass. Roe recovery standards are determined by industry personnel.

FISHERY MANAGEMENT

Districts and Management Units

New for the 1995 sac roe herring fishery; management units have been redescribed so that latitude and longitude descriptions follow the 1983 datum baseline on current NOAA marine charts. The KMA is divided into 13 districts which define geographical areas used in managing the sac roe herring fishery. Each district is then further divided into sections, **several sections are new or have new boundary lines**. A legal description of these districts and sections are can be found in Appendix A.1. These new district and section boundaries will be put into effect by "emergency order" prior to the start of the season. Management units are intended to define the spawning area used by a stock of herring or to define a geographical harvest location. Statistical charts are also available which illustrate district and section, (Figures 1-9).

Guideline Harvest Levels

Harvest projections or guideline harvest levels (GHL's) are established for all management units which have produced consistent herring harvests in previous sac roe seasons. These GHL's are meant to reflect the status of a particular stock of herring by management unit and an estimate of harvest for the unit. These GHL's are **not guaranteed quotas** and the actual harvest may exceed or fall short of these projections. Criteria for establishing the GHL include; 1) 1994 expected biomass vs. actual biomass estimates, 2) average school size, 3) trends in age composition, and 4) spawn observations (extent, frequency, amount deposited). This information is supplemented by fishery performance information namely the expected vs. actual harvest timing, harvest duration, and harvest level. Some management units are designated "exploratory" and are assigned no GHL because these areas have had sporadic or no harvest of herring in past years. Inseason closures in these exploratory areas may occur and is dependent on actual harvest levels.

Management Unit Closures

An evaluation of the KMA herring stocks over the last three years has revealed that several herring stocks have experienced a decline in abundance. In several cases the GHL's for these areas have been reduced over several years and yet the decline has continued. **Therefore, the following sections will be closed for the entire 1995 season.**

South Afognak District

(SA10) Izhut Bay
(SA20) Kitoi Bay
(SA30) MacDonalds Lagoon
(SA40) Danger Bay
(SA50) Litnik
(SA60) Inshore Marmot

Uyak District

(UY10) Offshore Uyak
(UY20) Harvester Island
(UY30) Inner Uyak Bay
(UY31) Larsen Bay
(UY32) Browns Lagoon
(UY40) Zachar Bay
(UY50) Spiridon Bay

North Afognak District

NA10 Shuyak Island Section will be open.
The following sections will remain closed;
(NA20) Delphin Bay
(NA30) Perenosa Bay
(NA40) Seal Bay
(NA50) Tonki Bay

Inner Marmot District

IM20 Anton Larson Bay Section will remain closed.
The remaining sections of this district will be open.

1995 Harvest Projections

The 1995 KMA sac roe guideline harvest level is approximately 4,480 tons. The actual harvest will depend on inseason fishery performance combined with ADF&G's ability to assess harvests in a timely manner. The GHL's by management unit (Table 3) will be used as an aid in making inseason management decisions. The GHL's are distributed by district as follows: North Afognak District, (except the Shuyak Island management unit will be **closed**), 20 tons, West Afognak District 1,135 tons, South Afognak District **closed**, Uganik District 915 tons, Uyak District **closed**, Sturgeon/Halibut District exploratory, Alitak District 660 tons, Eastside District 1,265 tons, Northeast District 145 tons, Inner Marmot District 35 tons, North Mainland District 65 tons, Mid Mainland District 115 tons, and the South Mainland District 125 tons. The forecasted harvest for the KMA is approximately 9% of the projected statewide sac roe herring harvest of 48,800 tons, (Table 4).

Season Dates and Fishing Periods

The 1995 sac roe herring season will run from April 15 through June 30. Initial fishing periods will be 24 hours in duration and will begin at 12:00 noon on odd numbered days and end at 12:00 noon on even numbered days.

Because of the differential timing and abundance of Kodiak's various herring stocks, relatively high gear levels to GHL's, and the competition between gear types, this fishery is best served by a fixed opening date, which opens all units of the KMA collectively prior to any significant herring buildups. Staggered days of fishing provide clearly defined closed periods. These periods allow staff time to collect, summarize, and update all harvest data. The closures also allow for comparisons between reported and actual harvests.

INSEASON FISHERY MANAGEMENT

General Discussion

Inseason management of the sac roe fishery relies primarily on harvest data collected by ADF&G field crews stationed in management units where harvests are anticipated. During the 1995 season as many as five ADF&G field crews, the ADF&G vessel M/V K-Hi-C, and the Alaska Department of Public Safety Fish and Wildlife Protection (FWP) vessel M/V Trooper will monitor the fishery. An ADF&G biologist will be working jointly with FWP aboard the M/V Trooper to monitor the fishery.

Generally, once the preseason GHL has been reached for a management unit, it is closed for the season. Due to the rapid pace of harvest in certain locations, inperiod closures are frequent. In management units which have an ADF&G field crew present, inperiod closures may occur with as little as 15 minutes advanced notification time. In management units without field crews inperiod closures may occur by, 1) announcement on single side band frequency 4.125 mhz following the daily marine weather forecast at 8:00 a.m. and 6:00 p.m., 2) field announcement by an ADF&G representative, or 3) by announcement by an ADF&G representative on single

side band radio frequency 4.125 mhz at 11:00 p.m. from April 15 through May 1. Further details on Emergency Closures can be seen on page 6, "Getting the Word".

If at any time during the season it appears that preseason expectations are incorrect, GHL's can be adjusted above or below preseason levels. Consequently, units may be closed prior to reaching their GHL's or allow a harvest in excess of the GHL's depending on the assessed spawning biomass. During the regulatory season, April 15 to June 30, stocks which have been closed to harvesting may be reopened if it is determined by ADF&G that new fish have increased the available spawning biomass to the point that the initial exploitation rate has dropped below 10% for that stock, (Table 3). Any reopenings will require confirmation that the "new" fish are not juvenile herring, post spawners, or other forage fish and that ADF&G has the ability to monitor and regulate the reopening "on the grounds". At least 24 hours notice will be given prior to any reopenings. However, due to the imprecise method of determining specific biomass estimates within the KMA combined with the anticipated high seine gear effort, reopenings are unlikely to occur in 1995.

All fishermen, spotter pilots, and processors are encouraged to provide the ADF&G management staff with any information on stocks to improve the management of the fishery.

Changes in Fishing Period Duration

Depending on effort, harvest rates, and ADF&G's ability to monitor the fishery, the length of fishing periods during the first two weeks of the season may be reduced. Any changes to the "normal" 24 hour periods will be announced by emergency order. Changes in fishing period duration may occur on a district by district basis and would apply to both gear types.

Catch Reporting

Processors and independent tender operators are required to provide timely daily catch reports of herring deliveries by management unit. Herring catches onboard tenders that have not yet delivered to the cannery must also be reported daily.

Timely and accurate harvest reports from ADF&G field crews, fishermen, spotters, and processors are critical in order to assess herring harvests and guide the management of the fishery. Inaccurate or late information could result in premature area closures or GHL's being greatly exceeded. To date industry cooperation has been excellent in support of this fishery.

Individual code sheets will be provided to each tender operator or processor required to report catches on a daily basis. **Tender operators and buyers are required to register with ADF&G in Kodiak prior to starting operations and will be given a packet containing regulations, statistical charts, etc. Reporting times and schedules will be specified at the time of registration.**

ADF&G Field Crews/Fisher Cooperation

The ADF&G personnel aboard the M/V K-Hi-C, M/V Trooper, and seasonal personnel in remote tent camps will assist the Area Management Biologist, by making frequent fishermen

contacts to collect data on harvest levels and rates, fleet movements, and fleet observations of herring concentrations, (Table 5).

Fisher cooperation will be appreciated when Department personnel request herring samples from their commercial catch. Samples of juvenile herring inadvertently caught will also be gladly accepted by ADF&G personnel. Samples will be used primarily for monitoring age composition, and when used with other stock performance indicators, will assist in determining stock status. Copies of historical age data by stock are available at the Kodiak ADF&G office.

ADF&G field crews will also monitor and map spawning activities, and solicit information on commercial sightings to supplement information gathered by ADF&G. Fishermen and spotter pilots are encouraged to provide biomass and spawning information, which will remain confidential. Past cooperation has been excellent and has helped evaluate stock status and gain critical management information.

Emergency Order Announcements: "Getting the Word"

By regulation, both purse seine and gillnet gear are allowed to fish in any open area. This allows for a wide dispersion of gear throughout the management area. Consequently, it is important for the fleet to be aware of any changes in closures or reopenings. This can be accomplished by: 1) personal contact with the herring management staff in Kodiak via office visits, or telephone at 486-1830, or radio-telephone, 2) contact with ADF&G field personnel and vessels, on VHF Channel 6, SSB on 3.230 mhz call sign WON32, or 4.125 call sign WHM29, 3) contacting any local herring processor and having them transmit the latest Kodiak herring emergency order, **4) calling the 24-hour recorded message phone at 486-4559,** 5) listening for any emergency order update which will be broadcast following the daily 8:00 a.m. and 6:00 p.m. marine weather broadcasts, on 4.125 mhz or by ADF&G announcement at 11:00 p.m. from April 15 through May 1 on 4.125 mhz, 6) obtaining a copy of the most recent emergency order, which are posted outside the entrance to the Kodiak Fish and Game building, and 7) listening to the Fish and Game reports broadcast over the local AM and FM radio stations (consult stations for broadcast times). No announcements will be given via VHF from the Kodiak Office due to the limited broadcast range, however special consideration may be given to the Chiniak Bay fishery.

Inperiod closure announcements for management units do occur. Because of the extensive announcements associated with this fishery, **it is recommended that fishermen document the latest E.O. announcement broadcast by either marking a chart or making a tape recording of the broadcast.**

REGULATORY SUMMARY

Regulation Booklet and Statistical Chart

The 1994-95 Commercial Herring Fishing Regulation booklet along with the new herring statistical chart are available at the Kodiak ADF&G Office. Note: **That regulation 5AAC**

27.505. Descriptions of Districts and Sections has been amended, Appendix A.1., lists the corrected legal descriptions of districts and management units. Corrections to the descriptions have been made using the 1983 North America datum NOAA marine charts. The remainder of the regulation booklet remains in effect.

Gear Regulations

5 AAC 27.515 Gear.

(a) Herring may be taken only by seines, gillnets, and trawls, except that beach seines and trawls may not be used to take herring during the sac roe herring season.

(b) A herring fishing vessel may operate or assist in operating, or have aboard it, only one legal limit of herring fishing gear in the aggregate, except that a herring fishing vessel may tow or transport other herring fishing vessels containing those vessels own gear.

(g)The use of leads with any gear used for commercial herring fishing is prohibited during the herring sac roe season.

Seine Specifications and Operations

5 AAC 27.525. Seine specifications and operations.

(a) From April 1 through July 31, no purse seine may be more than 1,025 meshes in depth, including meshes used as chaffing gear, or more than 100 fathoms in length.

(d)From April 1 through July 31, an Area K CFEC sac roe seine permit holder may use, to take herring, only the vessel identified on the permit, unless the permit holder has registered, in person, at the Department's Kodiak office, to use a replacement vessel. Only one replacement seine vessel may be registered by a CFEC permit holder at a time.

Gillnet Specifications and Operations

5 AAC 27.520. Gillnet specifications and operations.

(a) The aggregate length of herring gillnets in use by a CFEC permit holder may not exceed 150 fathoms.

(b) The interim-use or entry permit holder **must be physically present** while the gillnet is being fished.

(c) Each drift gillnet in operation must have a buoy at one end and the opposite end must be attached to the fishing vessel. Each set net in operation must be anchored and **buoyed** at both ends. **All buoys must be at least 10 inches in diameter and all buoys used on an individual gillnet must be of the same color. Each buoy must be plainly and legibly marked with the permanent vessel license plate number (ADF&G number) of the vessel operating the gear.** The buoy may bear only a single number and this number must be that of the vessel used in

operating the gear. The number must be painted on the top one-third of the buoy in numerals at least four inches in height, one-half inch in width and in a color contrasting to that of the buoy. The buoy markings must be visible on the buoy above the water surface. **Set gillnets must have a buoy** spaced every 25 fathoms along the net and the buoys must be floating on the surface of the water.

Extra Time For Gillnetters

Additionally as stated in 5AAC 27.520 (d) when the following conditions exist, herring gillnetters are allowed a **two hour** grace period before having to completely remove their gear from the water.

1. Herring gillnets may remain in the water up to **two hours** after the "primary closure time" for those fishing periods having fishing time of three hours or less.

2. Herring gillnets may remain in the water up to **two hours** after the announced "primary" closure time for those fishing periods greater than three hours in length, where the announcement occurs less than three hours before the scheduled "primary closure time" of the fishing period.

The "primary closure time" is the time at which all seine gear must have completed fishing. When it applies, the "secondary closure time", i.e. at the end of the two hour grace period for gillnet gear, **ALL GILLNETS MUST BE COMPLETELY OUT OF THE WATER BY THE "SECONDARY CLOSURE TIME" OR THE NORMAL 12 NOON FISHERY PERIOD CLOSURE TIME WHICHEVER COMES FIRST AND NO GILLNET GEAR MAY BE SET OR RESET AFTER THE "PRIMARY CLOSING TIME".**

Waters Closed to Herring Fishing

5 AAC 27.530. Waters closed to herring fishing. (a)During the period July 1 through October 31, herring may not be taken in waters described in 5 AAC 18.350 and 5 AAC 39.290. (Waters closed to salmon fishing). Following is a listing of closed water areas to herring fishing.

(1) **Women's Bay:** all waters enclosed by a line from Shannon's Point (57° 43' 40" N. lat., 152° 31' 44" W. long.) to Nymans Peninsula (57° 43' 22" N. lat., 152° 31' 33" W. long.).

(2) **Brown's Lagoon:** all waters, beginning at the seaward entrance, are closed to herring fishing from April 15 through June 30.

(3) **Uganik Island: the lagoons of Uganik Island as follows:**

(A) south and west of a line from 57° 51' 06" N. lat., 153° 13' 32" W. long., to 57° 52' 07" N. lat., 153° 15' 12" W. long.;

(B) north of a line from 57° 49' 22" N. lat., 153° 17' 39" W. long., to 57° 49' 28" N. lat., 153° 19' 18" W. long.;

(C) east of a line from 57° 50' 51" N. lat., 153° 19' 11" W. long., to 57° 49' 26" N. lat., 153° 19' 12" W. long.

Registration Requirements

Tenders and Processors

The tender registration procedure requires:

- Each tender operator and processor must register with the Kodiak ADF&G office either in person or by an authorized agent for that tender or processor.

- Registration must occur prior to taking fish on board the tender or taking fish at the processing plant.

- **(See Regulation 5 AAC 27.540 of the Commercial Herring Regulations for additional information. Note: This regulation will be strictly enforced.**

Details of tender and floating processor reporting requirements will be finalized at the time of registration.

Fishing Vessels

There are **no special registration requirements** for either seine or gillnet vessels unless a purse seine permit holder intends to use a different vessel than is listed on their permit card. (See regulation 5AAC 27.525)

Herring Size Limits

As stated in 5AAC 27.536, no CFEC herring seine permit holder may sell or have aboard a vessel any herring that were taken during the sac roe herring season if the number of individual herring per 50 lbs. of net weight exceeds 250 fish (approximately 91 grams average weight).

TO PREVENT WASTE, PERMIT HOLDERS ARE ENCOURAGED TO CHECK WITH THEIR MARKETS PRIOR TO FISHING TO DETERMINE THE ACCEPTABLE MINIMUM SIZE/WEIGHT AND ROE PERCENTAGES. ALL HERRING WHICH ARE HARVESTED DURING THE SAC ROE SEASON WHICH ARE SOLD AS BAIT OR ARE DISCARDED DUE TO QUALITY PROBLEMS WILL BE INCLUDED AS PART OF THE TOTAL SAC ROE HARVEST.

Aircraft

There are no restrictions on the use of aircraft.

Table 1. Historical harvest by gear type for the Kodiak sac roe herring fishery, 1964-1994.

Year	Total Harvest Tons	Seine Tons	Gillnet	Number of Companies	Number of Vessels		
					Seine	Gillnet	Total
1964	568	568		2	5		5
1965	657	657		2	8		8
1966	2,769	2,769		4	11		11
1967	1,662	1,662		4	5		5
1968	2,001	2,001		4	10		10
1969	1,130	1,130		9	21		21
1970	342	342		5	13		13
1971	284	284		2	4		4
1972	215	215		1	4		4
1973	831	831		4	11		11
1974	868	868		4	26		26
1975	8	8		3	2		2
1976	5	5		1	1		1
1977	338	338		3	11		11
1978	904	881	23	7	28	7	35
1979	1,735	1,457	278	8	57	125	182
1980	2,383	2,009	374	9	92	109	201
1981	2,065	1,596	469	9	79	114	193
1982	1,771	1,447	324	6	45	67	112
1983	2,319	1,797	522	7	41	64	105
1984	2,163	1,691	472	7	39	69	108
1985	1,968	1,244	724	7	34	81	115
1986	1,558	1,111	448	8	31	71	102
1987	2,146	1,591	555	8	29	62	91
1988	2,171	1,304	868	6	33	76	109
1989	2,249	1,513	736	6	37	83	120
1990	2,347	1,644	703	6	27	63	90
1991	2,432	1,697	735	6	32	64	96
1992	4,283	3,260	1,023	6	40	74	114
1993	4,929	4,203	726	8	41	86	127
1994	5,893	4,976	917	15	66	57	123
Total	54,994	45,099	9,897				
Average	1,774	1,454	582				

Table 2. Kodiak Management Area sac roe herring fishery industry summary, 1979-1994.

Year	Gear Type	Units of Gear	Est. Number Landings	Est. Harvest (Tons)	Est. Harvest Percent	Est. Total Value	Est. Average Earnings	Average Tons/Boat	Average Tons/ Landings	Average Landings/ Boat
	Purse Seine	57	-	1457.2	84	$2,185,788	$38,347	25.6	-	-
1979	Gillnet	125	-	277.9	16	$416,670	$3,333	2.2	-	-
	TOTAL	182	-	1735.1	100	$2,602,458			-	-
	Purse Seine	92	-	2009.0	84	$1,377,987	$14,978	21.8	-	-
1980	Gillnet	109	-	374.0	16	$280,423	$2,573	3.4	-	-
	TOTAL	201	-	2383.0	100	$1,685,410			-	-
	Purse Seine	79	207	1596.2	77	$1,137,764	$14,402	20.2	7.7	2.6
1981	Gillnet	114	406	469.2	23	$395,640	$3,471	4.1	1.2	3.6
	TOTAL	193	613	2065.4	100	$1,633,404				
	Purse Seine	45	138	1447.0	82	$801,840	$17,819	32.2	10.5	3.1
1982	Gillnet	67	191	323.6	18	$182,160	$2,719	4.8	1.7	1.8
	TOTAL	112	329	1770.6	100	$1,533,404				
	Purse Seine	41	164	1796.9	78	$1,437,520	$35,061	43.8	11	4
1983	Gillnet	64	284	521.6	22	$417,280	$6,520	8.2	1.8	4.4
	TOTAL	105	448	2318.5	100	$1,854,800				
	Purse Seine	39	138	1691.2	78	$1,352,960	$34,691	43.3	12.3	3.5
1984	Gillnet	69	212	471.5	22	$377,200	$5,467	6.8	2.2	3.1
	TOTAL	108	350	2162.7	100	$1,730,160				
	Purse Seine	34	118	1244.2	63	$1,119,780	$32,935	36.6	10.5	3.5
1985	Gillnet	81	348	723.5	37	$651,150	$8,039	8.9	2.1	4.3
	TOTAL	115	466	1967.7	100	$1,770,930				
	Purse Seine	31	132	1110.8	71	$1,054,310	$34,010	35.8	8.4	4.3
1986	Gillnet	71	385	448.6	29	$426,170	$6,002	6.3	1.2	5.4
	TOTAL	102	517	1559.4	100	$1,480,480				
	Purse Seine	29	122	1591.3	74	$1,591,300	$54,872	54.9	13	4.2
1987	Gillnet	62	411	554.6	26	$554,600	$8,945	9	1.35	6.6
	TOTAL	91	533	2145.9	100	$2,145,900				
	Purse Seine	33	169	1303.6	60	$1,694,550	$51,350	39.5	7.7	5.1
1988	Gillnet	76	555	867.2	40	$1,127,620	$14,837	11.4	1.6	7.3
	TOTAL	109	724	2170.8	100	$2,822,170				

-Continued-

Table 2. (page 2 of 2)

Year	Gear Type	Units of Gear	Est. Number Landings	Est. Harvest (Tons)	Est. Harvest Percent	Est. Total Value	Est. Average Earnings	Average Tons/Boat	Average Tons/ Landings	Average Landings/ Boat
	Purse Seine	37	171	1512.6	67	$1,285,710	$34,749	40.9	8.8	4.6
1989	Gillnet	83	627	736.0	33	$625,600	$7,537	8.9	1.2	7.6
	TOTAL	120	798	2248.6	100	$1,911,310				
	Purse Seine	27	156	1644.0	70	$1,397,400	$51,724	60.9	10.5	5.8
1990	Gillnet	63	544	703.0	30	$597,550	$9,652	11.2	1.3	8.6
	TOTAL	90	700	2347.0	100	$1,994,950				
	Purse Seine	32	169	1697.0	70	$1,442,450	$45,077	53.0	10	5.3
1991	Gillnet	64	587	735.0	30	$624,750	$9,762	11.5	1.3	9.2
	TOTAL	96	756	2432.0	100	$2,067,200				
	Purse Seine	40	185	3260.0	76	$1,630,000	$40,750	81.5	17.6	4.6
1992	Gillnet	74	706	1023.0	24	$511,500	$6,912	13.8	1.4	9.5
	TOTAL	114	891	4283.0	100	$2,141,500				
	Purse Seine	41	237	4203.0	85	$2,312,000	$56,380	102.5	17.7	4.3
1993	Gillnet	86	294	726.0	15	$399,000	$4,640	8.4	2.5	8.5
	TOTAL	127	531	4929.0	100	$2,711,000				
	Purse Seine	66	285	4976.0	84	$3,981,000	$60,320	75.4	17.5	5.8
1994	Gillnet	57	485	917.0	16	$733,000	$12,860	16.1	1.9	3.4
	TOTAL	123	770	5893.0	100	$4,714,000				

Table 3. Sac roe herring fishery guideline harvest levels by stock, Kodiak Management Area, 1995.

STAT. AREA	MGMT. UNITS	1995 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS @10% EXPLOITATION	REQUIRED SPAWNING BIOMASS @20% EXPLOITATION
NORTH AFOGNAK DISTRICT				
NA10	Shuyak Is.	20 Tons	200 Tons	100 Tons
NA20	Delphin Bay	CLOSED	-	-
NA30	Perenosa Bay	CLOSED	-	-
NA40	Seal Bay	CLOSED	-	-
NA50	Tonki Bay	CLOSED	-	-
DISTRICT TOTAL		**20 Tons**	**200 Tons**	**100 Tons**
WEST AFOGNAK DISTRICT				
WA10	Raspberry St.	350 Tons	3,500 Tons	1,750 Tons
WA20	Malina Bay	250 Tons	2,500 Tons	1,250 Tons
WA31	Paramanof Bay	400 Tons	4,000 Tons	2,000 Tons
WA32	Foul Bay	75 Tons	750 Tons	375 Tons
WA40	Devils Inlet	10 Tons	100 Tons	50 Tons
WA40	Blue Fox	50 Tons	500 Tons	250 Tons
WA50	Offshore W. Afog.[a]	-	[a]	[a]
DISTRICT TOTAL		**1,135 Tons**	**11,350 Tons**	**5,675 Tons**
SOUTH AFOGNAK DISTRICT				
SA10	Izhut Bay	CLOSED	-	-
SA20	Kitoi Bay	CLOSED	-	-
SA30	MacDonalds Lagoon	CLOSED	-	-
SA40	Danger Bay	CLOSED	-	-
SA50	Litnik	CLOSED	-	-
SA60	Duck Bay	CLOSED	-	-
DISTRICT TOTAL		**CLOSED**	-	-
UGANIK DISTRICT				
UG10	Kupreanof	10 Tons	100 Tons	50 Tons
UG20	Viekoda	100 Tons	1,000 Tons	500 Tons
UG21	Terror	200 Tons	2,000 Tons	1,000 Tons
UG30	Village Island	250 Tons	2,500 Tons	1,250 Tons
UG31	W. Uganik Pass	75 Tons	750 Tons	375 Tons
UG32	NE Arm Uganik	30 Tons	300 Tons	150 Tons
UG33	E. Arm Uganik	100 Tons	1,000 Tons	500 Tons
UG34	S. Arm Uganik	150 Tons	1,500 Tons	750 Tons
UG40	Offshore Uganik[a]	-	[a]	[a]
DISTRICT TOTAL		**915 Tons**	**9,150 Tons**	**4,575 Tons**
UYAK DISTRICT				
UY10	Offshore Uyak[a]	CLOSED	-	-
UY20	Harvester Island	CLOSED	-	-
UY30	Inner Uyak	CLOSED	-	-
UY32	Browns Lagoon	CLOSED	-	-
UY31	Larsen Bay	CLOSED	-	-
UY40	Zachar Bay	CLOSED	-	-
UY50	Spiridon Bay	CLOSED	-	-
DISTRICT TOTAL		**CLOSED**	-	-

-Continued-

Table 3. (page 2 of 3)

STAT. AREA	MGMT. UNITS	1995 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS @10% EXPLOITATION	@20% EXPLOITATION
ALITAK DISTRICT				
AL10	Outer Alitak	(Exploration)	b	b
AL20	Inner Alitak	(Exploration)	b	b
AL21	Inner Deadman Bay	150 Tons	1,500 Tons	750 Tons
AL22	Outer Deadman Bay	125 Tons	1,250 Tons	625 Tons
AL30	Sulua Bay	190 Tons	1,900 Tons	950 Tons
AL31	Portage Bay	75 Tons	750 Tons	375 Tons
AL40	Lower Olga/Moser	20 Tons	200 Tons	100 Tons
AL41	No. Upper Olga Bay	10 Tons	100 Tons	50 Tons
AL50	Upper Olga Bay	75 Tons	750 Tons	375 Tons
AL60	Geese/Twoheaded	15 Tons	150 Tons	75 Tons
District Total		**660 Tons**	**6,600 Tons**	**3,300 Tons**
STURGEON/HALIBUT DISTRICT				
SH10	Sturgeon/Halibut	(Exploration)	b	b
EASTSIDE DISTRICT				
EA10	Kaiugnak	20 Tons	200 Tons	100 Tons
EA20	SW. Sitkalidak	20 Tons	200 Tons	100 Tons
EA21	Three Saints Bay	60 Tons	600 Tons	300 Tons
EA22	Newman Bay	40 Tons	400 Tons	200 Tons
EA23	W. Sitkalidak St.	300 Tons	3,000 Tons	1,500 Tons
EA24	Barling Bay	50 Tons	500 Tons	250 Tons
EA30	E. Sitkalidak St.	290 Tons	2,900 Tons	1,450 Tons
EA31	Tanginak Anchorage	15 Tons	150 Tons	75 Tons
EA40	Outer Sitka.	(Exploration)	b	b
EA41	Boulder Bay	(Exploration)	b	b
EA42	Shearwater Bay	90 Tons	900 Tons	450 Tons
EA43	Outer Kiliuda Bay	80 Tons	800 Tons	400 Tons
EA44	Inner Kiliuda Bay	80 Tons	800 Tons	400 Tons
EA50	Outer Ugak Bay	60 Tons	600 Tons	300 Tons
EA51	Inner Ugak Bay	120 Tons	1,200 Tons	600 Tons
EA52	Pasagshak	40 Tons	400 Tons	200 Tons
District Total		**1,265 Tons**	**12,650 Tons**	**6,325 Tons**
NORTHEAST DISTRICT				
NE10	Womens Bay	100 TONS	1,000 Tons	500 Tons
NE20	Kalsin Bay	15 TONS	150 Tons	75 Tons
NE30	Middle Bay	20 TONS	200 Tons	100 Tons
NE40	Inshore Chiniak	10 TONS	100 Tons	50 Tons
NE50	Off. Chiniak	(Exploration)	b	b
District Total		**145 Tons**	**1,450 Tons**	**725 Tons**
INNER MARMOT DISTRICT				
IM10	Monashka Bay	(Exploration)	b	b
IM20	Anton Larsen Bay	CLOSED	-	-
IM30	Sharatin Bay	10 TONS	100 Tons	50 Tons
IM40	Kizhuyak Bay	15 TONS	150 Tons	75 Tons
IM50	Spruce Island	10 TONS	100 Tons	50 Tons
District Total		**35 TONS**	**350 Tons**	**175 Tons**

-Continued-

Table 3. (page 3 of 3)

STAT. AREA	MGMT. UNITS	1995 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS @10% EXPLOITATION	REQUIRED SPAWNING BIOMASS @20% EXPLOITATION
NORTH MAINLAND DISTRICT				
NM10	Hallo Bay	(Exploration)	b	b
NM20	Inner Kukak	65 TONS	650 Tons	325 Tons
NM30	Outer Kukak[a]	-	a	a
NM40	Missak Bay	(Exploration)	b	b
District Total		**65 Tons**	**650 Tons**	**325 Tons**
MID MAINLAND DISTRICT				
MM10	Inner Katmai	65 Tons	650 Tons	325 Tons
MM20	Outer Katmai[a]	-	a	a
MM30	Alinchak	50 Tons	500 Tons	250 Tons
MM40	Puale Bay	(Exploration)	b	b
MM50	Portage Bay	(Exploration)	b	b
MM60	Outer Portage[a]	-	a	a
District Total		**115 Tons**	**1,150 Tons**	**575 Tons**
SOUTH MAINLAND DISTRICT				
SM10	Wide Bay	125 Tons	1,250 Tons	625 Tons
SM20	Lower Shelikof	(Exploration)	b	b
District Total		**125 TONS**	**1,250 Tons**	**625 Tons**
GRAND TOTAL		**4,480 TONS**	**44,800 Tons**	**22,400 Tons**

[a] These are offshore management units which are not expected to yield herring of sac roe quality. These units are more applicable to the food/bait fishery. (See Herring Food/Bait Fishery Management Plan.)

[b] These management units have adequate biomass to justify an "exploratory" harvest; the actual harvest should not exceed 20% of the available biomass.

Table 4. Alaska statewide sac roe herring harvests for 1994 and preliminary 1995 harvest projections.

Fishery Location	1994 Harvest	1995 Harvest Projection
Southeast		
Kah Shakes	749	650
Sitka Sound	4,753	1,721
Seymour Canal	374	316
Lynn Canal	0	0
Other Areas	0	0
Total All Areas	**5,876**	**2,687**
Prince William Sound		
Total All Fisheries	**0**	**0**
Cook Inlet		
Kamishak District	2,167	2,970
Upper Cook Inlet	0	0
Total All Areas	**2,167**	**2,970**
Kodiak		
Total Area	**5,893**	**4,480**
Chignik		
Total Area	**0**	**0**
Alaska Peninsula		
North Peninsula	90	1,100
South Peninsula	8	150
Total Area	**98**	**1,250**
Bristol Bay (Togiak)		
Seine	22,719	19,747
Gill Net	7,458	6,582
Total Area	**30,177**	**26,329**
Kuskokwim Area		
Security Cove	0	1,340
Goodnews Bay	1,061	845
Cape Avinof	427	397
Nunivak Island	14	916
Nelson Island	713	669
Cape Romanzof	456	513
Norton Sound		
Gillnet	921	5,596
Beach Seine	40	622
Port Clarence	0	165
AYK Total	3,632	11,063
Statewide Total Harvest	47,843	48,779

Table 5. Alaska Department of Fish and Game, Division of Commercial Fisheries 1995 management staff.

Office Staff:	
Regional Supervisor	Pete Probasco
Regional Management Biologist	Wayne Donaldson
Area Management Biologist	Dave Prokopowich
Assistant Management Biologist	Dennis Gretsch
Assistant Management Biologist	Kevin Brennan
Fishery Biologist	Joan Brodie
Fishery Technician	Joan Shaker
M/V K-Hi-C:	
Boat Officer	Tom Emerson
Fishery Biologist	Dennis Gretsch
M/V Trooper:	
Fishery Biologist	Kevin Brennan
Field Crews:	
Fishery Technician	Kim Rudge
Fishery Technician	Mo Lambdin
Fishery Technician	Jon Becker
Fishery Biologist	Dave Sarafin
Fishery Technician	Ed Hajdys
Fishery Technician	Matt Stone
Fishery Technician	Mike Anderson
Fishery Technician	Keith Wible

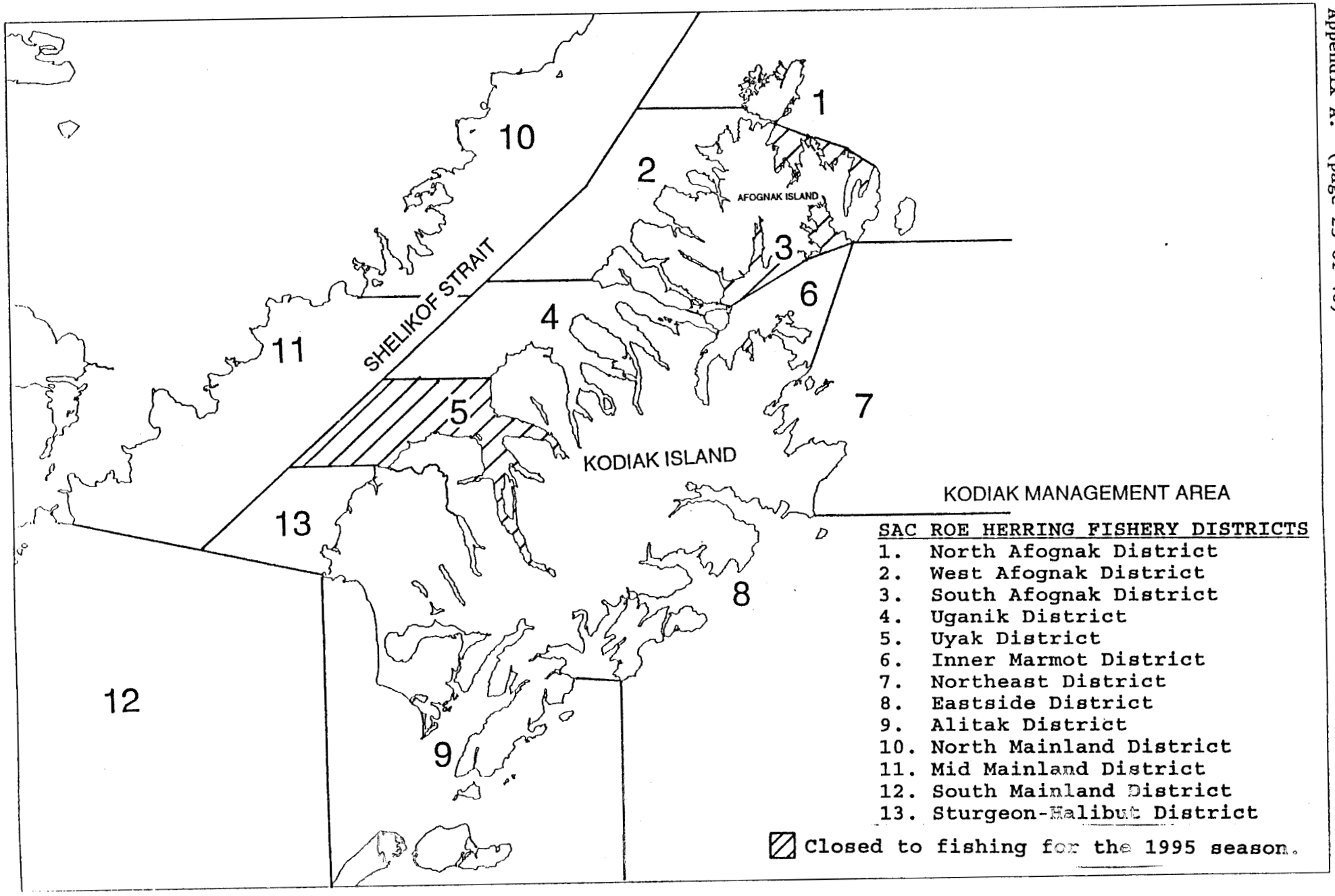

Figure 1. Map of the Kodiak Management Area which illustrates the sac roe herring fishery districts and closed to fishing areas.

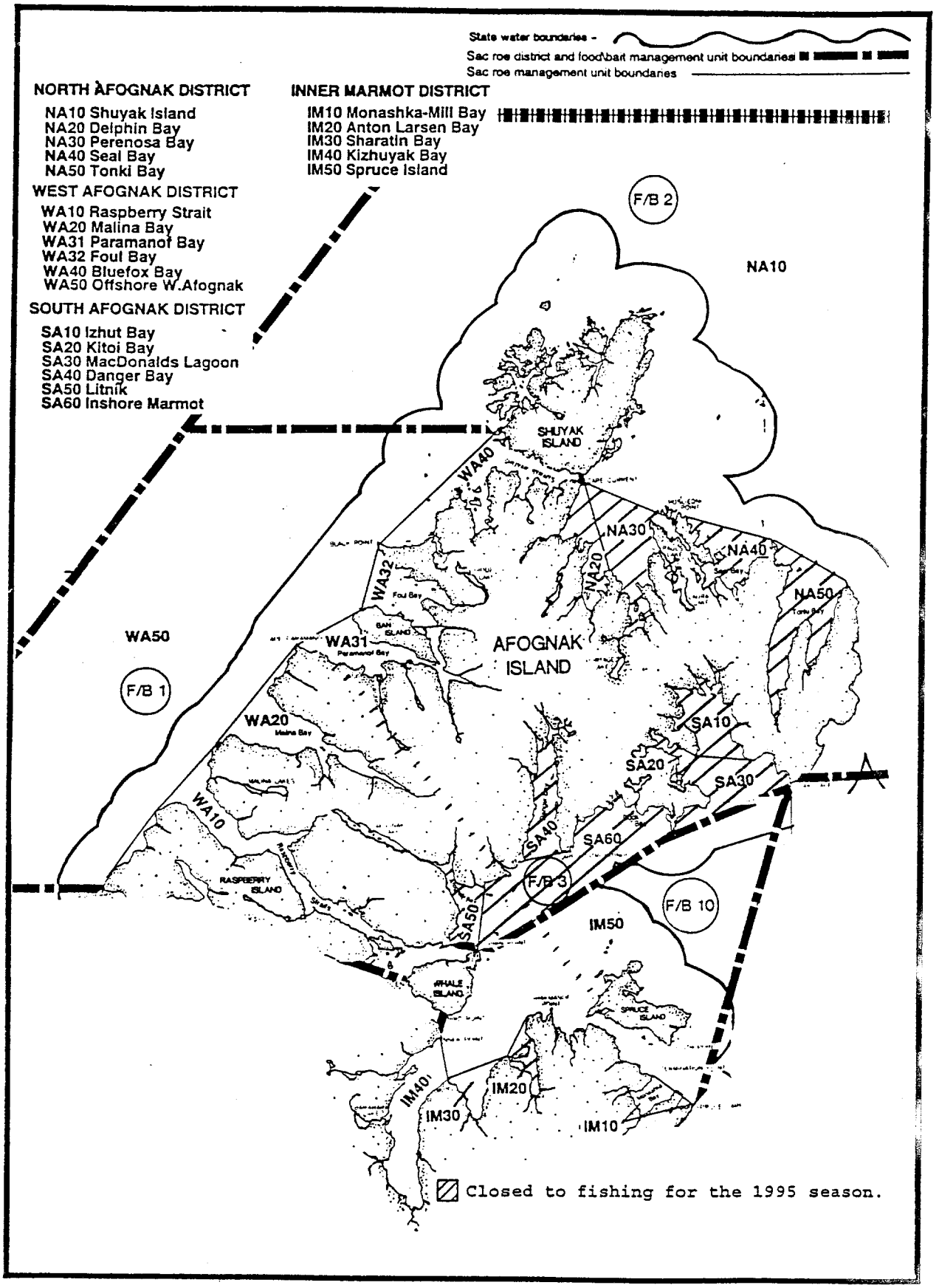

Figure 2. Statistical chart showing the North Afognak, West Afognak, South Afognak, and Inner Marmot Districts and Sections.

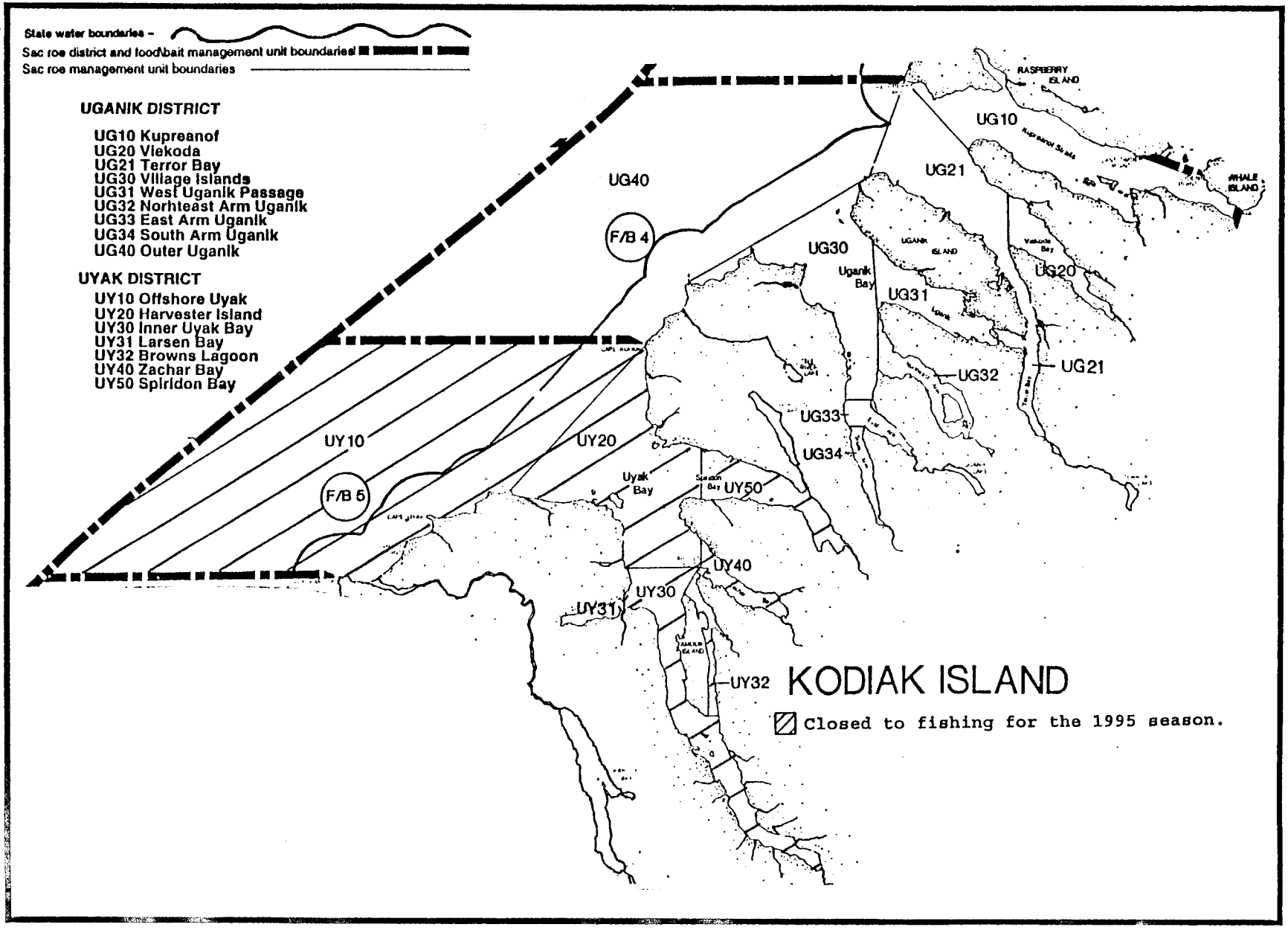

Figure 3. Statistical chart showing the Uganik and Uyak Districts and Sections.

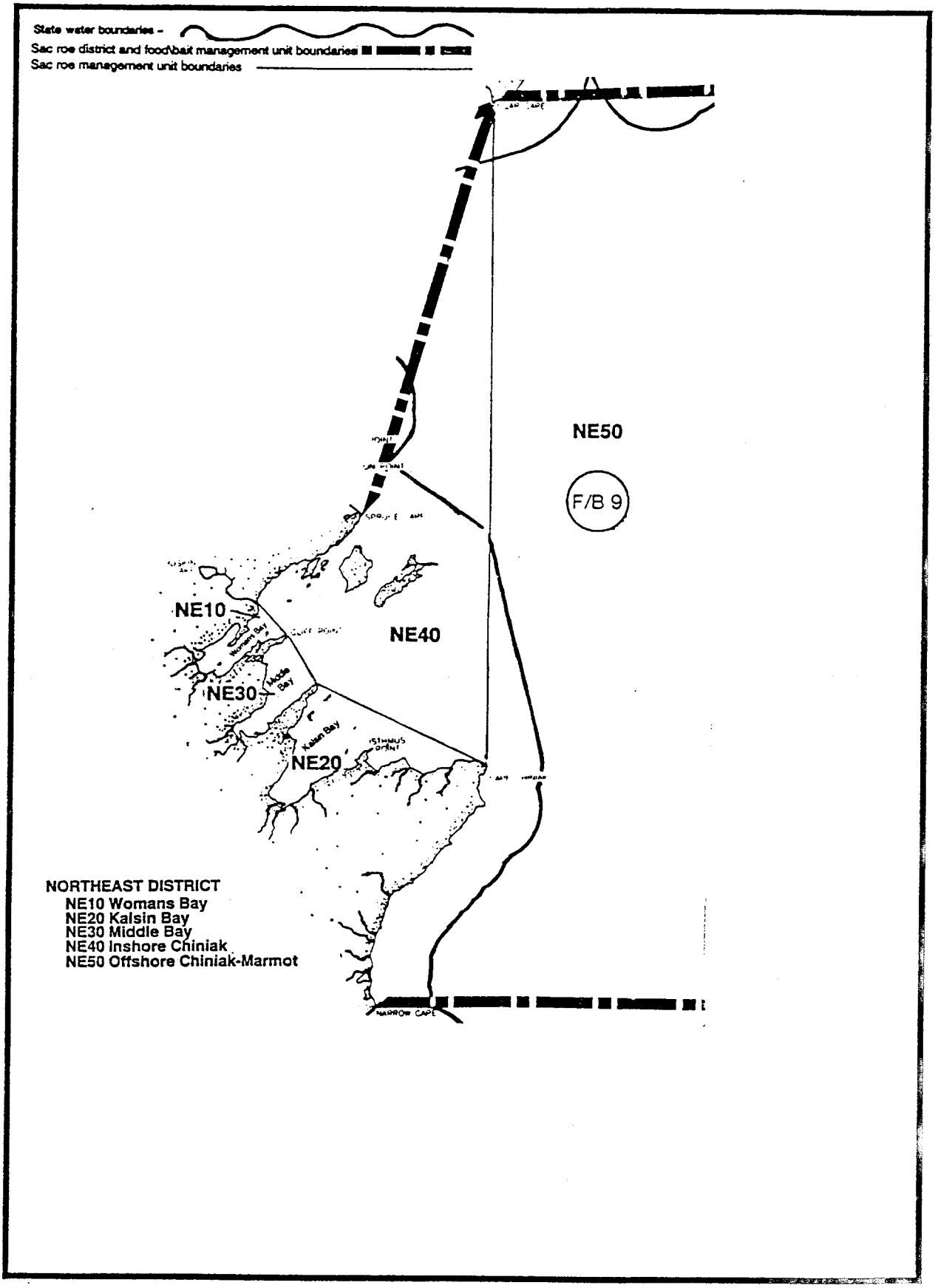

Figure 4. Statistical chart showing the Northeast District and Sections.

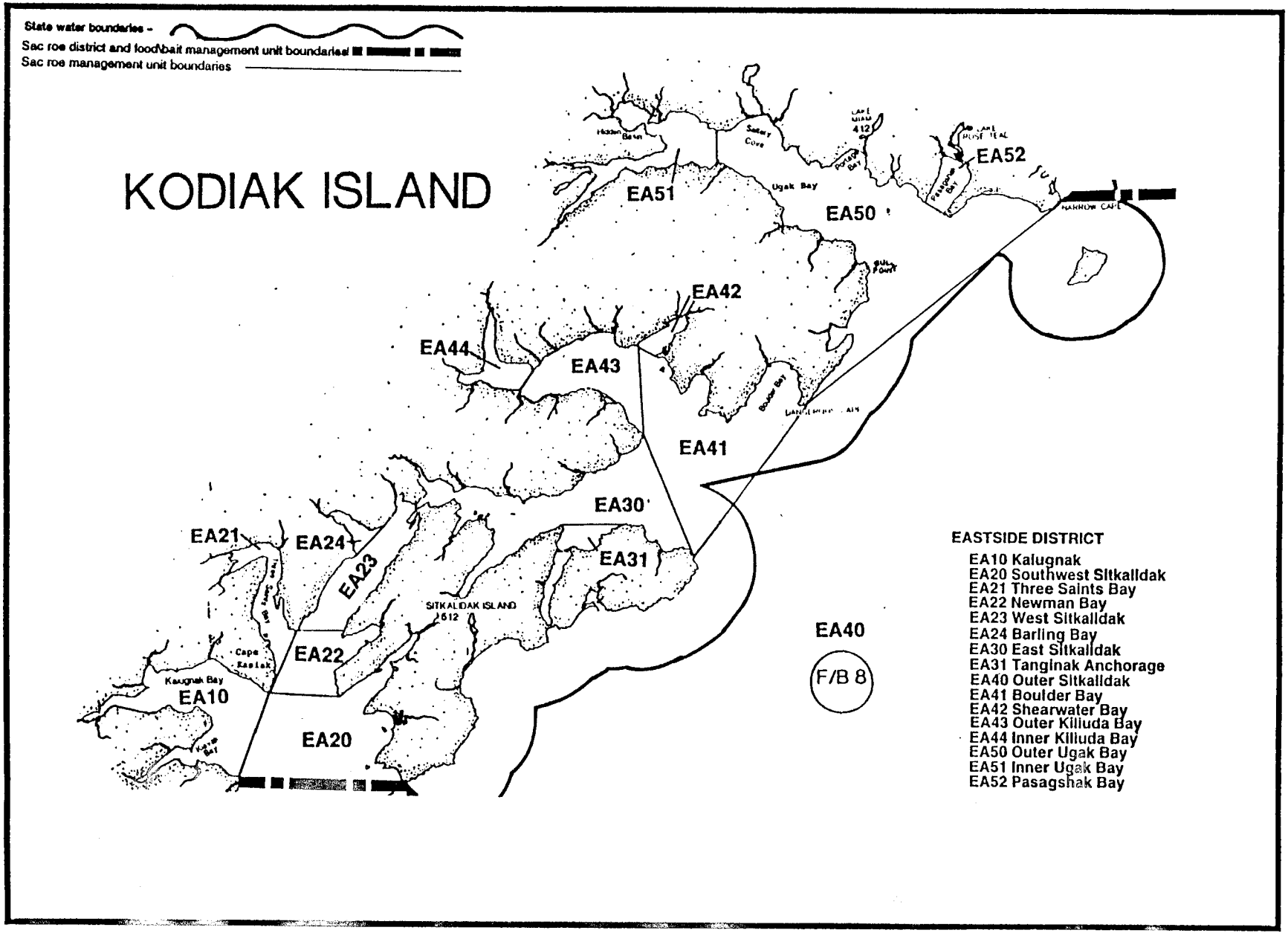

Figure 5. Statistical chart showing the Eastside District and Sections.

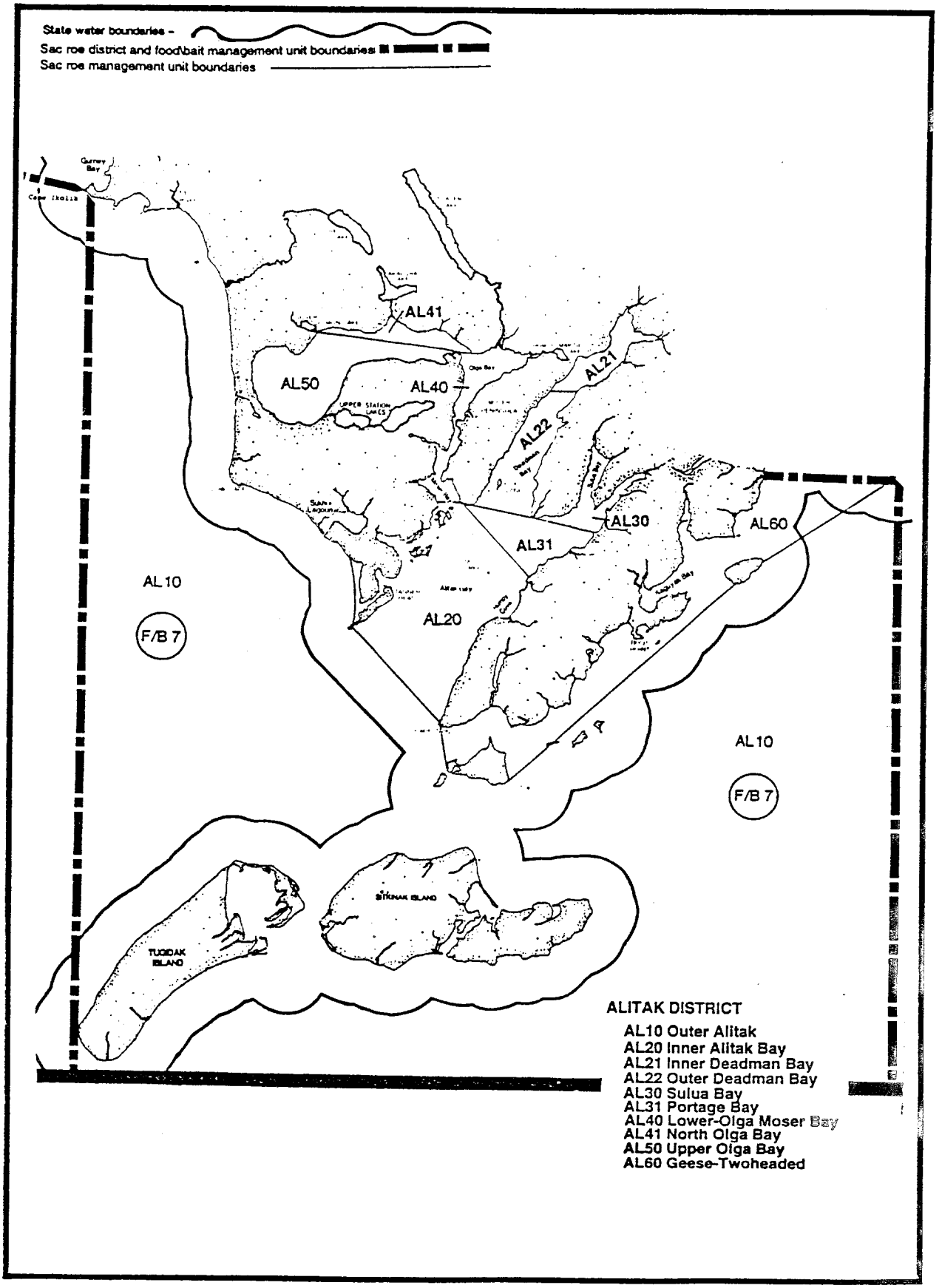

Figure 6. Statistical chart showing the Alitak District and Sections.

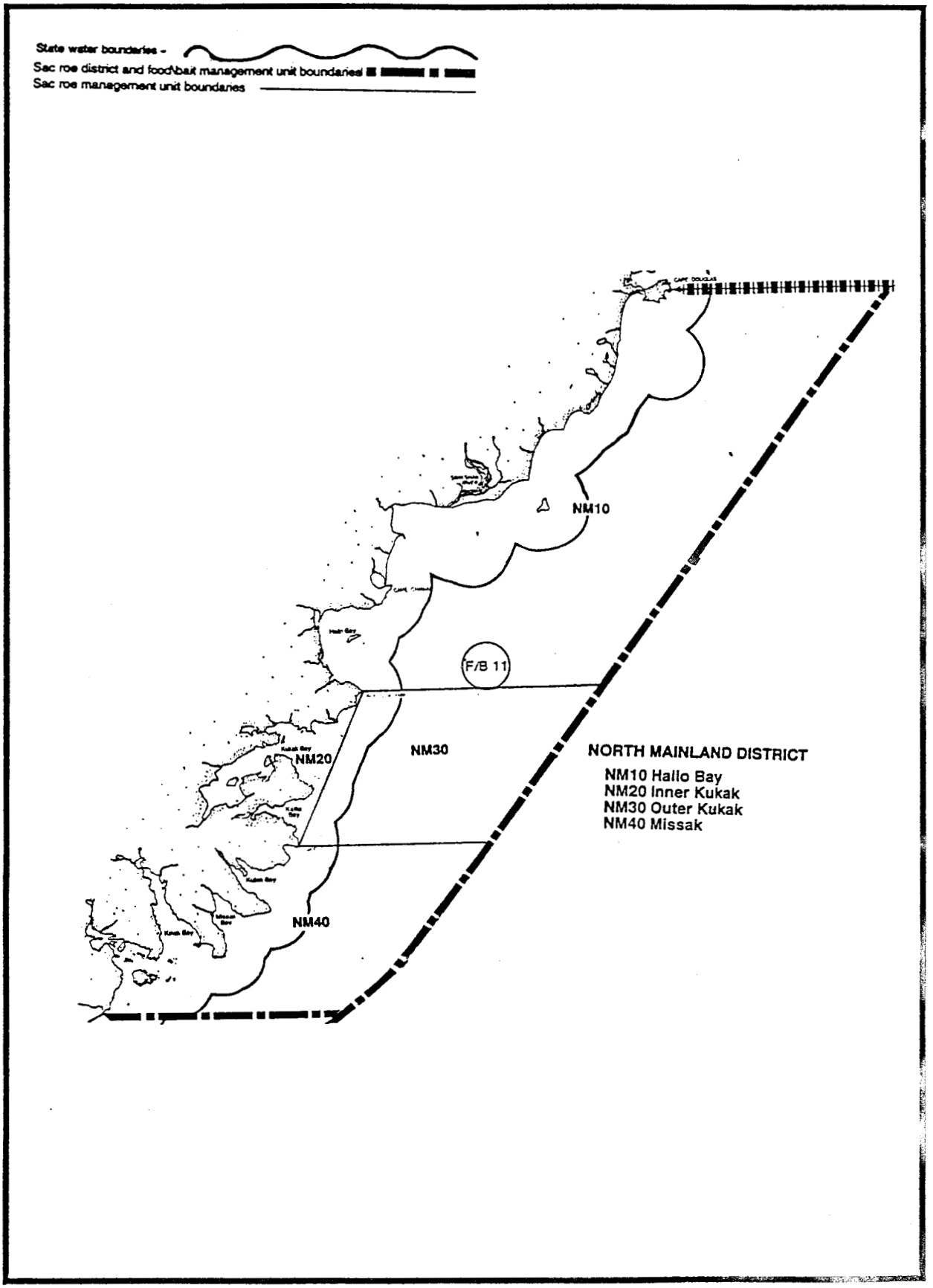

Figure 7. Statistical chart showing the North Mainland District and Sections.

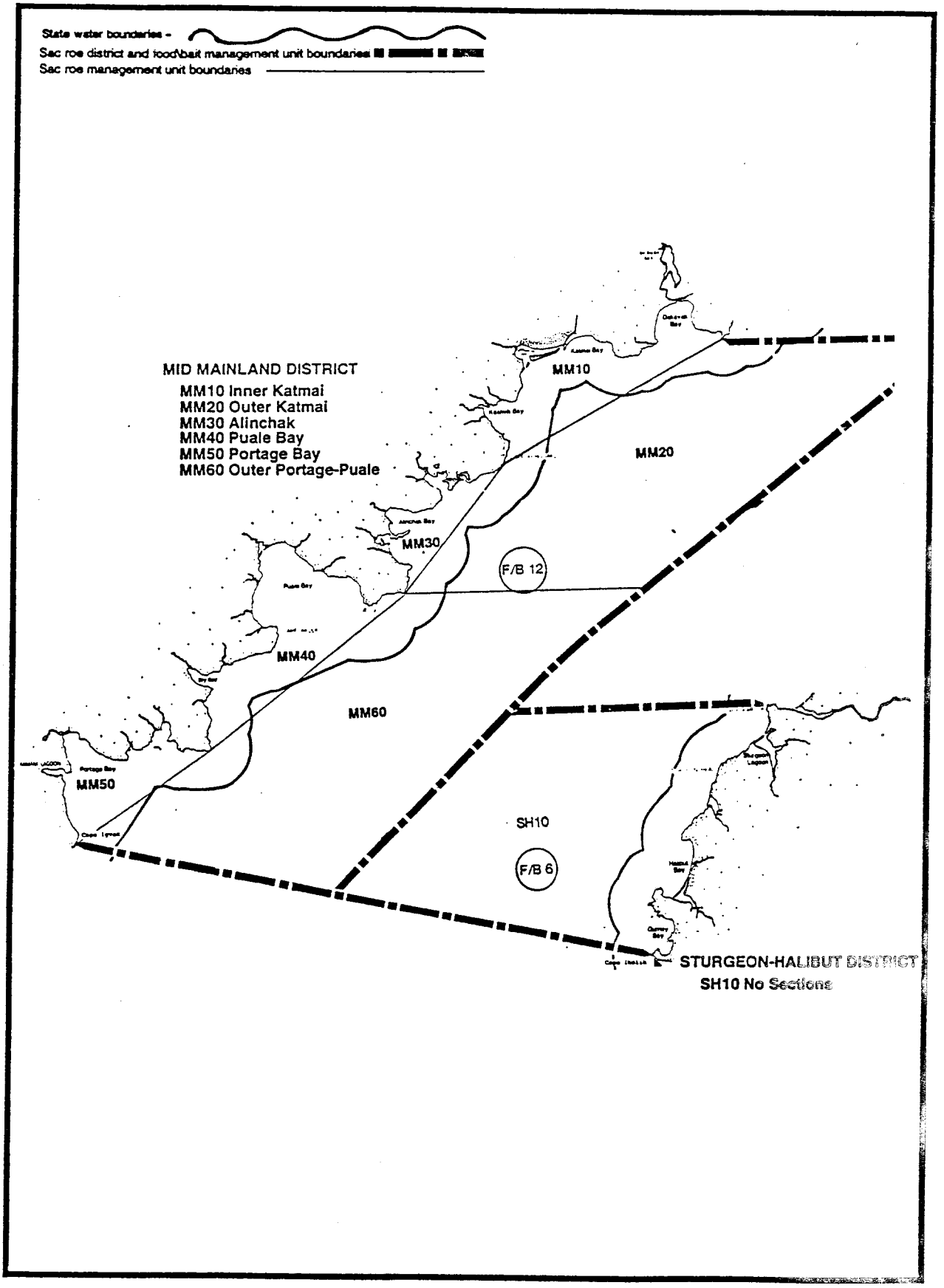

Figure 8. Statistical chart showing the Mid Mainland and Sturgeon-Halibut Bay Districts and Sections.

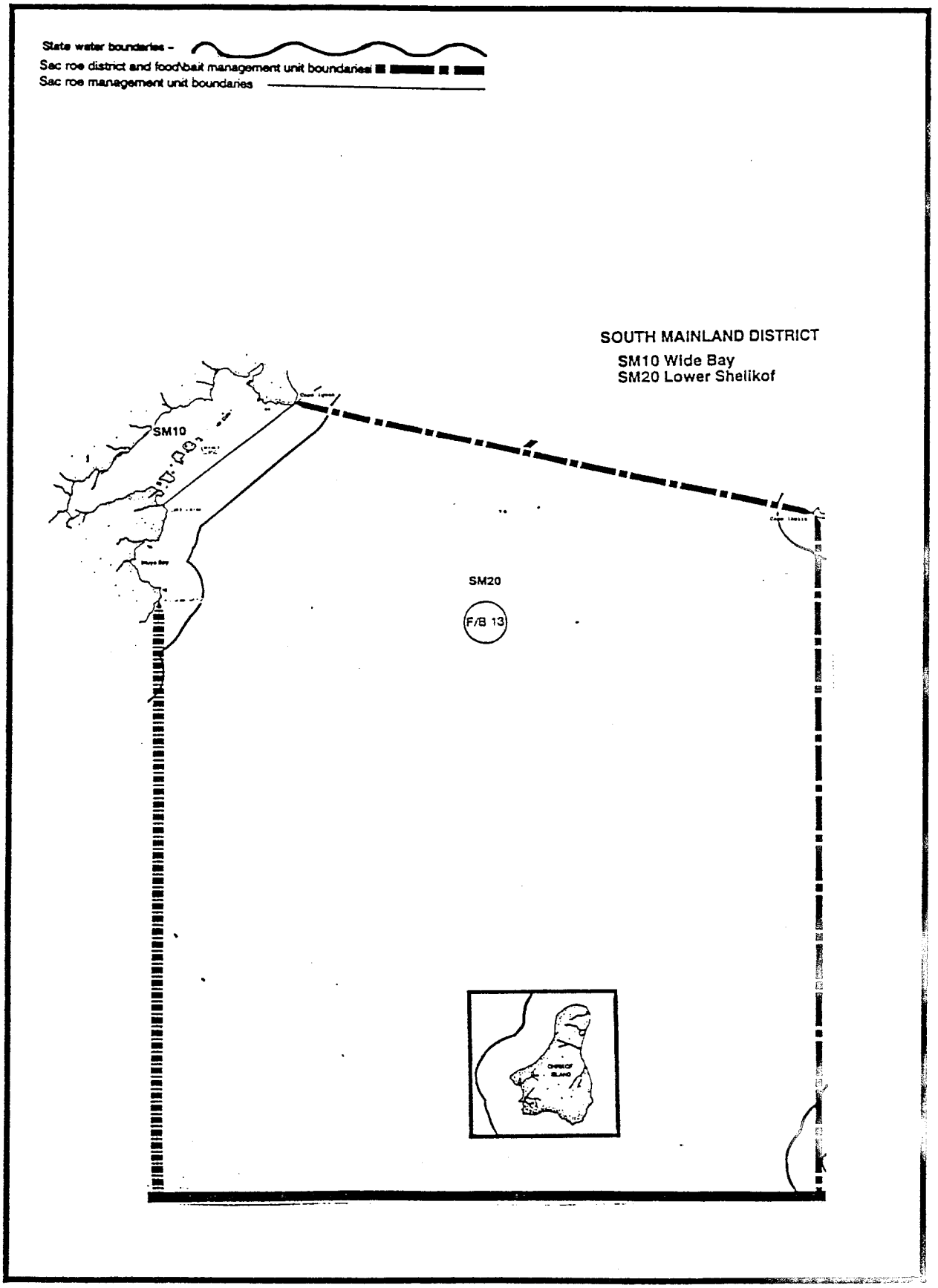

Figure 9. Statistical chart showing the South Mainland District and Sections.

APPENDIX

Appendix A.1. Kodiak Management Area regulation amendments of the descriptions of districts and management units.

ARTICLE 8. STATISTICAL AREA K - KODIAK AREA

5 AAC 27.500. DESCRIPTION OF AREA. (a) Statistical Area K includes all waters of Alaska south of a line extending east from Cape Douglas (58° 51' 06" N. lat.), west of 150° W. long., north of 55° 30' N. lat., and east of a line extending south from the southern entrance of Imuya Bay near Kilokak Rocks (156° 20' 04" W. long.).

5 AAC 27.505. DESCRIPTION OF DISTRICTS AND SECTIONS.
(a) West Afognak District: all waters south of a line from Head Point (57° 59' 40" N. lat., 152° 46' 45" W. long.) to Dolphin Point (57° 59' 10" N. lat., 152° 43' 25" W. long.) and north of a line from Occident Point (57° 57' 25" N. lat., 152° 51' 45" W. long.) to Last Timber Point (57° 58' 36" N. lat., 152° 59' 03" W. long. and north of a line extending west on the latitude of Raspberry Cape (58° 03' 35" N. lat.) to midstream of Shelikof Strait, east of midstream of Shelikof Strait to Cape Newland (58° 30' 24" N.lat., 152° 39' 30" W. long.), and west of the longitude of Cape Current (152° 28' 54" W. long.).

(1) Raspberry Strait Section: all waters of Raspberry Strait encompassed by a line extending from Raspberry Cape (58° 03' 35" N. lat., 153° 25' 15" W. long.) to Steep Cape (58° 12' N. lat., 153° 12' 30" W. long.) and by lines from Head Point (57° 59' 40" N. lat., 152° 46' 45" W. long.) from Occident Point (57° 57' 25" N. lat., 152° 51' 45" W. long.) to Last Timber Point (57° 58' 36" N. lat., 152° 59' 03" W. long.);

(2) Malina Bay Section: all waters of Malina Bay east of a line from Steep Cape (58° 12' N. lat., 153° 12' 30" W. long.) to Cape Paramanof (58° 18' 20" N. lat., 153° 02' 48" W. long.);

(3) Paramanof Bay Section: all waters of Paramanof Bay east of a line from Cape Paramanof (58° 18' 20" N. lat., 153° 02' 48" W. long.) to the westernmost tip of Ban Island and south of a line extending from the east side of Ban Island to the west side of Afognak Island at 58° 19' 15" N. lat.

(4) Foul Bay Section: all waters of Foul Bay east of a line from the westernmost tip of Ban Island to Black Cape (58° 24' 30" N. lat., 152° 53' 18" W. long.), excluding the Paramanof Bay Section;

(5) Bluefox Bay Section: all waters encompassed by a line from Black Cape (58° 24' 30" N. lat., 152° 53' 18" W. long.) to Cape Newland (58° 30' 24" N. lat., 152° 39' 30" W. long.) and west of a line at the longitude of Cape Current (152° 28' 54" W. long.) north to Shuyak Island;

(6) Offshore West Afognak Section: all waters encompassed by lines extending west along the latitudes of Raspberry Cape (58° 03' 35" N. lat.) and Cape Newland (58° 30' 24" N. lat.) to midstream of Shelikof Strait, and by lines from Raspberry Cape to Steep Cape to Cape Paramanof to Cape Newland;

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(b) North Afognak District: all waters north of the latitude of Cape Newland and east of midstream Shelikof Strait to the latitude of Cape Douglas, east of the longitude of Cape Current, and north of the latitude of Pillar Cape (58° 08' 54" N. lat., 152° 06' 54" W. long);

(1) Shuyak Island Section: all waters north of the latitude of Cape Newland, east of the longitude of Cape Current, and north of a line from Cape Current to Tolstoi Point (58° 23' 45" N. lat., 152° 07' 30" W. long.), to Tonki Cape (58° 21' 08" N. lat., 151° 59' 12" W. long.) and north of the latitude of Pillar Cape;

(2) Delphin Bay Section: all waters of Delphin Bay south and west of a line from Delphin Point (58° 22' 47" N. lat., 152° 26' 18" W. long.) to Cape Current;

(3) Perenosa Bay Section: all waters of Perenosa Bay south of a line from Cape Current to Posliedni Point (58° 26' N. lat., 152° 19' 30" W. long.), excluding the Delphin Bay Section;

(4) Seal Bay Section: all waters of Seal Bay south of a line from Posliedni Point to Tolstoi Point;

(5) Tonki Bay Section: all waters of Tonki Bay south of a line from Tolstoi Point to Tonki Cape;

c) South Afognak District: all waters north of a line from Pillar Cape (58° 08' 54" N. lat., 152° 06' 48" W. long.) to Cape Izhut (58° 06' 02" N. lat., 152° 20' 24" W. long.) to Dolphin Point (57° 59' 10" N. lat., 152° 43' 25" W. long.) and to Head Point (57° 59' 40" N. lat., 152° 46' 10" W. long);

(1) Izhut Bay Section: all waters of Izhut Bay north of 58° 10' 36" N. lat.;

(2) Kitoi Bay Section: all waters of Kitoi Bay west of a line from 58° 10' 36" N. lat., 152° 17' 24" W. long. to 58° 09' 32" N. lat., 152° 18' 42" W. long.;

(3) MacDonalds Lagoon Section: all waters of Izhut Bay south of 58° 10' 36" N. lat., the eastern boundary of the Kitoi Bay Section, and a line from Cape Izhut to Pillar Cape;

(4) Danger Bay Section: all waters of Danger Bay north of a line from Cape Kazakof (58° 04' 40" N. lat., 152° 37' 40" W. long.) to Cape Kostromitinof (58° 05' N. lat., 152° 32' 45" W. long.);

(5) Litnik Section: all waters of Afognak Bay enclosed by a line from Head Point to Dolphin Point and the longitude of Dolphin Point;

(6) Inshore Marmot Section: all waters of Marmot Bay enclosed by a line from Cape Izhut to Dolphin Point, by the longitude of Dolphin Point, and by a line from Cape Kazakof to Cape Kostromitinof.

(d) Uganik Bay District: all waters north of the latitude of Cape Kuliuk (57° 48' 15" N. lat.) to midstream Shelikof Strait, and south of the latitude of Raspberry Cape to midstream Shelikof Strait, east of midstream Shelikof Strait, and including the waters of Kupreanof Straits west of a line from Inner Point (57° 54' 06" N. lat., 152° 47' 48" W. long.) to Bird Point (57° 55' 20"

-Continued-

N. lat., 152° 47' 30" W. long.) and south of a line from Occident Point (57° 57' 25" N. lat., 152° 51' 45" W. long.) to Last Timber Point (57° 58' 36" N. lat., 152° 59' 03" W. long.);

(1) Kupreanof Section: all waters encompassed by a line from Raspberry Cape to Outlet Cape (57° 59' 45" N. lat., 153° 17' 30" W. long.) and by lines from Inner Point to Bird Point and from Occident Point to Last Timber Point;

(2) Viekoda Bay Section: all waters of Inner Viekoda Bay east of the longitude of Naugolka Point (57° 53' 42" N. lat., 153° 14' 06" W. long.);

(3) Terror Bay Section: all waters of Terror Bay and Outer Viekoda Bay enclosed by lines from Raspberry Cape to Cape Uganik and from Raspberry Cape to Outlet Cape, and all waters of West Uganik Passage east of 153° 15' 42" W. long.;

(4) Village Islands Section: all waters of Uganik Bay south of a line from Cape Ugat to Cape Uganik (57° 58' N. lat., 153° 30' 17" W. long.), west of lines from Cape Uganik to East Point (57° 50' 30" N.lat., 153° 28' 42" W. long.) and from East Point to Rock Point at 57° 46' 47" N. lat., 153° 29' 18" W. long., and north of the latitude on Packer's Spit at (57° 44' 30" N. lat.);

(5) West Uganik Passage Section: all waters of West Uganik Passage west of 153° 15' 42" W. long. and east of a line from Cape Uganik to East Point;

(6) Northeast Arm Uganik Section: all waters of the Northeast Arm of Uganik Bay east of a line from East Point to Rock Point;

(7) East Arm Uganik Section: all waters of East Arm Uganik Bay (Mush Bay) and that portion of Inner Uganik Bay south of the latitude of Packer's Spit (57° 44' 30" N. lat.), and north of the latitude of Mink Point (57° 43' 08" N. lat.);

(8) South Arm Uganik Section: all waters of the South Arm of Uganik Bay south of the latitude of Mink Point;

(9) Outer Uganik Section: all waters south of the latitude of Raspberry Cape, north of the latitude of Cape Kuliuk, east of midstream of Shelikof Strait and west of a line from Cape Uganik to Cape Ugat (57° 52' 20" N. lat., 153° 50' 55" W. long.).

(e) Uyak District: all waters south of the latitude of Cape Kuliuk to midstream of Shelikof Strait and north of the latitude of Cape Karluk to midstream of Shelikof Strait, and east of midstream of Shelikof Strait and including all of Uyak Bay;

(1) Offshore Uyak Section: all waters south of the latitude of Cape Kuliuk to midstream Shelikof Strait and north of the latitude of Cape Karluk (57° 34' 42" N. lat.) to midstream Shelikof Strait, east of midstream Shelikof Strait, and west of a line from Cape Kuliuk to Cape Karluk;

(2) Harvester Island Section: all waters north of the latitude of Carlsen Point (57° 34' 33" N. lat.) and west of 153° 50' W. long. and south of a line from Cape Kuliuk to Cape Karluk;

-Continued-

(3) Inner Uyak Bay Section: all waters of Inner Uyak Bay south of the latitude of Carlsen Point, excluding the Larsen Bay and Browns Lagoon Sections;

(4) Larsen Bay Section: all waters of Larsen Bay west of 153° 58' 30" W. long.;

(5) Browns Lagoon Section: that portion of the Inner Uyak Bay Section in Amook Pass south of a line from the northern tip of Amook Island to Carlsen Point and north of the latitude of the southern tip of Amook Island;

(6) Zachar Bay Section: all waters of Zachar Bay east of 153° 50' W. long.;

(7) Spiridon Bay Section: all waters of Spiridon Bay east of 153° 50' W. long.;

(f) Sturgeon-Halibut Bay District: all waters south of the latitude of Cape Karluk to midstream Shelikof Strait and north a line from Cape Ikolik (57° 17' 26" N. lat.) to midstream of Shelikof Strait at (57° 22' N. lat. and 155° 25' W. long) and east of midstream Shelikof Strait and including all bays from Cape Ikolik to Cape Karluk.

(g) Alitak Bay District: all waters east of the longitude of Cape Ikolik (154° 47' 30" W. long.), west of the longitude of Black Point (153° 18' 39" W. long.), south of a line from Black Point (56° 59' 30" N. lat., 153° 18' 39" W. long) to Cape Kiavak (57° N. lat., 153° 32' 30" W. long.).

(1) Outer Alitak Section: all waters encompassed by lines east of the longitude of Cape Ikolik, west of the longitude of Black Point, south of a line from Black Point to the northernmost tip of Twoheaded Island, from the southernmost tip of Twoheaded Island to the easternmost tip of Aiaktalik Island, from the westernmost tip of Aiaktalik Island to Cape Trinity, and northwest to Cape Alitak (56° 50' 35" N. lat., 154° 18' 30" W. long.);

(2) Inner Alitak Bay Section: all waters enclosed by a line from Cape Alitak to Cape Trinity and south of a line from the latitude of Bun Point in Moser Bay, and from Bun Point to the northern entrance of Seaborg Cove at (56° 53' 50" N. lat., 153° 58' 43" W. long.);

(3) Inner Deadman Bay Section: all waters of Deadman Bay north of the latitude at (57° 05' N. lat.);

(4) Outer Deadman Bay Section: all waters north of a line from Cape Hepburn to Bun Point and south of the latitude at (57° 05' N. lat.);

(5) Portage Bay Section: all waters enclosed by a line from Bun Point to Cape Hepburn (56° 57' 18" N. lat., 154° 06' 27" W. long.), to a point in Portage Bay at (56° 56' 30" N. lat., 153° 51' 24" W. long.) and north of a line from Bun Point to the northern entrance of Seaborg Cove at (56° 53' 50" N. lat., 153° 58' 43" W. long.);

(6) Sulua Bay Section: all waters of Sulua and the northern portion of Portage Bay north of a line from Cape Hepburn to a point in Portage Bay at (56° 56' 30" N. lat., 153° 51' 24" W. long.);

(7) Lower Olga-Moser Bay Section: all waters of Lower Olga and Moser Bays encompassed south of a line from Stockholm Point (57° 07' 36" N. lat., 154° 06' 45" W. long.) east to a point at (57° 07' 28" N. lat., 154° 04' 54" W. long.) and north of the latitude of Bun Point;

-Continued-

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(8) North Olga Bay Section: all waters of Olga Bay north of a line which extends from the terminus of Silver Salmon Creek (No. 257-303) to Stockholm Point and east to a point at (57° 07' 28" N. lat., 154° 04' 54" W. long.)

(9) Upper Olga Bay Section: all waters of Upper Olga Bay south of a line from Stockholm Point to the terminus of Silver Salmon Creek (No. 257-303);

(10) Geese-Twoheaded Section: all waters encompassed by lines from Cape Trinity to the westernmost tip of Aiaktalik Island, from the easternmost tip of Aiaktalik Island to the southernmost tip of Twoheaded Island, from the northernmost tip of Twoheaded Island to Black Point and south of a line from Black Point (56° 59' 30" N. lat., 153° 18' 39" W. long) to Cape Kiavak (57° N. lat., 153° 32' 30" W. long.);

(h) Eastside District: all waters south of the latitude of Narrow Cape, extending east to 150° W. long, and north and east of a line from Black Point to Cape Kiavak.

(1) Kaiugnak Section: all waters of Kaiugnak and Kiavak Bays west of a line from Cape Kasiak to Cape Kiavak;

(2) Southwest Sitkalidak Section: all waters of West Sitkalidak Strait and associated bays enclosed by a line north of Cape Kiavak to Black Point, east of a line from Cape Kiavak to Cape Kasiak, and south of line from Cape Kasiak to Natalia Point, including all waters of Natalia Bay;

(3) Three Saints Bay Section: all waters of Three Saints Bay west of a line from Cape Kasiak to Cape Liakik;

(4) Newman Bay Section: all waters of Newman Bay and a part of Sitkalidak Strait enclosed by a line north of Natalia Point to Cape Kasiak, east of a line from Cape Kasiak to Cape Liakik, and south of the latitude of Cape Liakik at 57° 06' 44" N. lat.;

(5) West Sitkalidak Section: all waters of West Sitkalidak Strait west of 153° 16' 33" W. long. and north of the latitude of Cape Liakik at 57° 06' 44" N. lat., excluding the Barling Bay Section;

(6) Barling Bay Section: all waters of Barling Bay west of a line from the northern entrance at (57° 11' 39" N. lat., 153° 19' 05" W. long.) to Barling Spit (57° 10' 12" N. lat., 153° 21' 41" W. long.);

(7) East Sitkalidak Section: all waters of East Sitkalidak Strait and associated bays enclosed by a line from Left Cape (57° 15' 24" N. lat., 152° 56' 31" W. long.) to Cape Barnabas (59° 09' 04" N. lat., 152° 52' 12" W. long.) and east of 153° 16' 33" W. long., excluding the Tanginak Anchorage Section;

(8) Tanginak Anchorage Section: all waters of McDonald Lagoon and Tanginak Anchorage south of the latitude of Lagoon Point (57° 11' 22" N. lat., 153° 03' 45" W. long.);

(9) Outer Sitkalidak Section: all waters east of the longitude of Black Point, south of the latitude of Narrow Cape and east of lines from Cape Barnabas to Dangerous Cape and from Dangerous Cape to Narrow Cape;

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(10) Boulder Bay Section: all waters of Outer Kiliuda, Santa Flavia, and Boulder Bays enclosed by a line from Dangerous Cape to Cape Barnabas to Left Cape to Shearwater Point to Pillar Point;

(11) Shearwater Section: all waters of Shearwater Bay east of a line from Shearwater Point (57° 19' 48" N. lat., 152° 58' 30" W. long.) to Pillar Point (57° 19' 13" N. lat., 152° 54' 57" W. long.);

(12) Outer Kiliuda Bay Section: all waters of Kiliuda Bay west of a line from Left Cape to Shearwater Point and east of line from a point at (57° 18' 38" N. lat., 153° 05' 57" W. long.) to a point at (57° 17' 49" N. lat., 153° 06' 57" W. long.);

(13) Inner Kiliuda Bay Section: all waters of Kiliuda Bay west of a line from a point at (57° 18' 38" N. lat., 153° 05' 57" W. long.) to a point at (57° 17' 49" N. lat., 153° 06' 57" W. long.);

(14) Inner Ugak Bay Section: all waters of Ugak Bay west of 152° 49' W. long.;

(15) Outer Ugak Bay Section: all waters of Ugak Bay east of 152° 49' W. long. and north and west of a line from Dangerous Cape to Narrow Cape, excluding the Pasagshak Section;

(16) Pasagshak Bay Section: all waters of Pasagshak Bay north and east of a line from 57° 26' N. lat., 152° 31' 09" W. long. to 57° 25'" N. lat., 152° 29' 24" W. long.

(i) Northeast District: all waters north of the latitude of Narrow Cape including Chiniak Bay and east of a line from Spruce Cape to Pillar Cape, and south of the latitude of Pillar Cape.

(1) Women's Bay Section: all waters of Women's Bay south and west of a line from Cliff Point (57° 43' 30" N. lat., 152° 26' 31" W. long.) to the terminus of Buskin River (No. 259-211);

(2) Kalsin Bay Section: all waters of Kalsin Bay south and west of a line from Cape Chiniak (57° 37' 33" N. lat., 152° 09' 17" W. long.) to Broad Point;

(3) Middle Bay Section: all waters of Middle Bay south and west of a line from Broad Point to Cliff Point;

(4) Inshore Chiniak Section: all waters of Chiniak Bay enclosed by lines from Cape Chiniak to Broad Point to Cliff Point to the terminus of Buskin River (No. 259-211), and from Spruce Cape to Pillar Cape to Cape Chiniak;

(5) Offshore Chiniak-Marmot Section: all waters east of a line from Pillar Cape to Cape Chiniak, south of the latitude of Pillar Cape and north of the latitude of Narrow Cape.

(j) Inner Marmot Bay District: all waters east of a line from Spruce Cape to Pillar Cape, south of a line from Pillar Cape to Cape Izhut to Dolphin Point, and east of a line from Bird Point to Inner Point.

(1) Monashka-Mill Bay Section: all waters of Monashka Bay and Mill Bay west of a line from Termination Point (57° 51' 22" N. lat., 152° 24' 09" W. long.) to Spruce Cape (57° 49' 34" N. lat., 152° 19' 37" W. long.);

-Continued-

(2) **Anton Larsen Bay Section:** all waters of Anton Larsen Bay south of a line from Kizhuyak Point (57° 55' 01" N. lat., 152° 38' 12" W. long.) to Crag Point (57° 52' 45" N. lat., 152° 40'" W. long.);

(3) **Sharatin Bay Section:** all waters of Sharatin Bay south of a line from Crag Point to Kekur Point (57° 51' 29" N. lat., 152° 47' 09" W. long.);

(4) **Kizhuyak Bay Section:** all waters of Kizhuyak Bay west of a line from Kekur Point to Inner Point (57° 54' 03" N. lat., 152° 47'" W. long.);

(5) **Spruce Island Section:** all waters of Marmot Bay and adjacent bays and islands enclosed by a line from Spruce Cape to Pillar Cape to Cape Izhut to Dolphin Point to Inner Point to Kekur Point to Crag Point to Kizhuyak Point;

(k) North Mainland District: all waters south of the latitude of Cape Douglas (58° 51' 06" N. lat.), west of midstream Shelikof Strait, and north of the latitude of Cape Ilktugidak (58° 35' N. lat., 154° 01' 09" W. long).

(1) **Hallo Bay Section:** all waters south of the latitude of Cape Douglas to midstream of Shelikof Strait; and north of the latitude of Cape Nukshak (58° 23' 30" N. lat., 153° 58' 57" W. long.). and east to midstream of Shelikof Strait;

(2) **Inner Kukak Section:** all waters west of a line from Cape Nukshak to Cape Gull (58° 13' 03" N. lat., 154° 08' 39" W. long.);

(3) **Outer Kukak Section:** all waters east of a line from Cape Nukshak to Cape Gull and east of the latitudes of Cape Nukshak and Cape Gull to midstream of Shelikof Strait;

(4) **Missak Section:** all waters south of the latitude of Cape Gull east to midstream of Shelikof Strait and north of the latitude of Cape Ilktugitak to midstream of Shelikof Strait;

(l) Mid Mainland District: all waters south of the latitude of Cape Ilktugidak, west of midstream Shelikof Strait, and north of the latitude of Cape Igvak.

(1) **Inner Katmai Section:** all waters north and west of a line from Cape Ilktugitak (58° 01' 07" N. lat., 154° 35' 03" W. long.) to Cape Kubugakli (57° 53' 50" N. lat., 155° 03' 42" W. long.);

(2) **Outer Katmai Section:** all waters encompassed by the latitude of Cape Ilktugitak east to midstream of Shelikof Strait, the latitude of Cape Kekurnoi east to midstream of Shelikof Strait, west of midstream of Shelikof Strait, east of lines from Cape Ilktugitak to Cape Kubugakli and from Cape Kubugakli to Cape Kekurnoi (57° 43' 27" N. lat., 155° 18' 03" W. long.);

(3) **Alinchak Section:** all waters west of a line from Cape Kubugakli to Cape Kekurnoi;

(4) **Puale Bay Section:** all waters west of a line from Cape Kekurnoi to Cape Unalishagvak (57° 32' 42" N. lat., 155° 43' 50" W. long.);

(5) **Portage Bay Section:** all waters west of a line from Cape Unalishagvak to Cape Igvak (57° 26' 03" N. lat., 156° 01' 26" W. long.);

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(6) Outer Portage-Puale Section: all waters east of lines from Cape Kekurnoi to Cape Unalishagvak and from Cape Unalishagvak to Cape Igvak; and north of a line which extends from Cape Igvak east to midstream of Shelikof Strait at (57° 22' N. lat. and 155° 25' W. long.), and south of a line from the latitude of Cape Kekurnoi east to midstream of Shelikof Strait.

(m) South Mainland District: all waters enclosed by a line north of the latitude of 55° 30' N. lat., west of the longitude of Cape Ikolik, south of a line from Cape Ikolik to Cape Igvak, and east of a line extending south from the southern entrance of Imuya Bay near Kilokak Rocks at 156° 20' 04" W. long.;

(1) Wide Bay Section: all waters west of a line from Cape Igvak to Cape Kayakliut (57° 17' 39" N. lat., 156° 19' W. long.);

(2) Lower Shelikof Section: all waters enclosed east of a line from Cape Igvak to Cape Kayakliut, east of the longitude of Kilokak Rocks, west of the longitude of Cape Ikolik, south of a line from Cape Igvak to Cape Ikolik.

5 AAC 27.530. WATERS CLOSED TO HERRING FISHING. (a) During the period July 1 through October 31, herring may not be taken in waters described in 5 AAC 18.350 and 5 AAC 39.290.

(b) From April 15 through **June 30, or later if the season is extended by emergency order,** herring may not be taken in the following waters:

(1) Women's Bay: all waters enclosed by a line from Shannon's Point (57° 43' 40" N. lat., 152° 31' 44" W. long.) to Nymans Peninsula (57° 43' 22" N. lat., 152° 31' 33" W. long.).

(2) **Brown's Lagoon: all waters of the lagoon.**

(3) **Uganik Island: the lagoons of Uganik Island as follows:**

(A) south and west of a line from 57° 51' 06" N. lat., 153° 13' 32" W. long., to 57° 52' 07" N. lat., 153° 15' 12" W. long.;

(B) north of a line from 57° 49' 22" N. lat., 153° 17' 39" W. long., to 57° 49' 28" N. lat., 153° 19' 18" W. long.;

(C) east of a line from 57° 50' 51" N. lat., 153° 19' 11" W. long., to 57° 49' 26" N. lat., 153° 19' 12" W. long.

KODIAK MANAGEMENT AREA

COMMERCIAL FOOD/BAIT HERRING FISHERY HARVEST STRATEGY 1995/96

By

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[1]The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished division reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

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INTRODUCTION

The Kodiak Management Area (KMA) food/bait herring fishery has a long history, dating back to 1912. Early harvests were primarily utilized for food and reduction products and harvests far surpassed current levels. Since, the early 1960's the harvest has been utilized primarily as bait for the crab and longline fisheries.

This fishery targets both Kodiak and Kamishak spawning stocks which are present in the KMA, (Figure 1). Since the sac roe herring fisheries in the Kodiak and Cook Inlet areas are closed-to-entry fisheries, they are treated as primary fisheries. These fisheries are managed to provide for the majority of the harvest on the affected stocks to occur during the Kodiak and Kamishak sac roe fisheries. The food/bait fishery on these stocks are subsequently treated as secondary fisheries. The associated harvest levels are directly related to the results of the sac roe fisheries of these stocks.

This harvest strategy will summarize regulations which are in affect and how this fishery will be managed.

HARVEST STRATEGIES

During the Board of Fisheries meeting held in Anchorage in November of 1992 and in Kodiak in January of 1993, new harvest strategies were adopted which direct the management of the KMA food/bait herring fishery. This is the third year this fishery will be managed under these new harvest strategies.

KAMISHAK HERRING STOCKS

The 1994-95 Commercial Herring Fishing Regulations, Cook Inlet Area Section, lists the Kamishak Bay District Herring Management Plan (5AAC 27.465.) which outlines criteria for the management of the Kamishak Bay sac roe herring fishery and Shelikof Strait food/bait fishery as follows:

5 AAC 27.465 Kamishak Bay District Herring Management Plan.

a) The purpose of the Kamishak Bay District herring management plan is to describe the management strategies used to set the guideline harvest levels for the Kamishak Bay sac roe fishery, and for that portion of the Kamishak Bay stock allocated to the food and bait fishery conducted in the North Afognak Island, West Afognak Island, Uganik, North Mainland, and Mid-Mainland food and bait management units of the Kodiak management area, known as the Shelikof Strait food and bait fishery, as described in (5 AAC 27.535(c)), (Figure 2).

b) The management year for the Kamishak Bay herring stock is July 1 through June 30.

c) The allocation of the allowable harvest of the Kamishak Bay herring stock is 90 percent to the Kamishak Bay sac roe fishery, and 10 percent to the Shelikof Strait food and bait fishery.

d) The guideline harvest level for the fall Shelikof Strait food and bait fishery and the following spring Kamishak Bay sac roe fishery will be based on the projected biomass as determined by the most recent aerial surveys, age class composition, historical mortality, and recruitment trends.

e) The maximum exploitation rate for the Kamishak Bay herring stock is 20 percent of the spawning biomass, and will be determined as follows:

1) if the spawning biomass is 30,000 short tons or more, the maximum exploitation rate is 20 percent, with 18 percent allocated to the Kamishak sac roe fishery and 2 percent allocated to the Shelikof Strait food and bait fishery;

2) if the spawning biomass is 20,000 short tons or more, but less than 30,000 short tons, the maximum exploitation rate is 15 percent, with 13.5 percent allocated to the Kamishak sac roe fishery and 1.5 percent allocated to the Shelikof Strait food and bait fishery;

3) if the spawning biomass is 8,000 short tons or more, but less than 20,000 short tons, the allowable exploitation rate is 10 percent, with 9 percent allocated to the Kamishak sac roe fishery and 1 percent allocated to the Shelikof Strait food and bait fishery;

4) if the spawning biomass is less than 8,000 short tons, the Kamishak Bay sac roe fishery and the Shelikof food and bait fishery north of the latitude of Miner's Point will be closed, (Figure 3).

f) The management strategy for the Kamishak sac roe fishery is to target the fishery on older age classes, and to limit exploitation rates on younger age class herring (age five and younger) to 10 percent or less.

g) The allocation of Kamishak Bay herring stocks to the Shelikof Strait food and bait fishery will be based on the spawning biomass of age five and older herring and not on the biomass of juveniles. The quantity of herring stocks aged four years and younger caught in the Shelikof Strait food and bait fishery will be adjusted to approximate the biomass of a similar number of age five herring.

KODIAK FOOD/BAIT HARVEST STRATEGY

The specific management plan which guides the KMA food/bait fishery is described in the Kodiak Area 1995-96 Commercial Herring Fishing Regulation 5 AAC 27.535. The allocation of Kamishak Bay herring stock which overwinter in the Shelikof Strait in the KMA food/bait fishery is described in the Kamishak Bay District Herring Management Plan (5 AAC 27.465). The 1995/96 Kodiak Harvest Strategy combines the Kamishak food/bait guideline harvest level (GHL) with the Kodiak GHL for the West Afognak, Uganik, and Uyak food/bait management districts. Most Kodiak herring stocks have dramatically increased over the past five years. Intermixing of the Kodiak and Kamishak herring stocks occurs during the winter months on the west side of the Kodiak Island group. Actual inseason management is guided by the following regulation:

5 AAC 27.535. HARVEST STRATEGIES.

a) Except as otherwise provided in this section, the department shall manage the herring food/bait fishery so that the food/bait harvest does not exceed 10 percent of the actual Kodiak herring sac roe harvest in the previous season.

b) The department shall manage the herring food/bait fishery in waters set out in the Afognak District (5 AAC 27.505 (a)(1)-(5)), in the Uganik District (5 AAC 27.505(b)) and Uyak District (5 AAC 27.505(c)) so that the total harvest does not exceed the sum of (1) the allowable harvest of the Kamishak spawning stock that overwinter in the Shelikof Strait as determined under the Kamishak Bay District herring management plan (5 AAC 27.465) and (2) GHL set for the food/bait fishery in these waters as provided in (c), (Figure 2).

c) The GHL for the herring food/bait fishery in waters set out in the Afognak District (5 AAC 27.505 (a)(1)-(5)), Uganik District (5 AAC 27.505(b)) and Uyak District (5 AAC 27.505(c)) shall not exceed 10 percent of the herring sac roe harvest of the previous season in these waters.

d) When the Kamishak Bay herring spawning biomass is below 8,000 short tons the department shall close the food/bait fishery in Shelikof Strait north of the latitude of Miner's Point, (Figure 3).

MANAGEMENT DISTRICTS

To accommodate this harvest strategy, thirteen (13) food/bait management districts have been established to include geographical groupings of sac roe stocks and adjacent offshore areas.

Each food/bait management district consists of several sac roe herring fishery management units, Figures (4-12). Each food/bait management district GHL is based upon 10% of the total sac roe herring harvest which occurred within the food/bait management district boundaries.

GUIDELINE HARVEST LEVELS

The 1995-1996 food/bait G.H.L. for the KMA will be affected by the following management considerations:

Kodiak Spawning Stocks

For Kodiak spawning stocks, as described in 5 AAC 27.535(a) Harvest Strategies, the department shall limit the food/bait harvest to 10% of the previous spring's sac roe harvest on a stock by stock basis, (Table 1). Harvest levels on Kodiak stocks in the adjacent offshore areas will reflect the combined food/bait G.H.L. for the sac roe stocks included within that management district. A maximum of 458 tons properly distributed throughout the KMA will be the food/bait guideline harvest on Kodiak spawning stocks.

The herring stocks within Food/Bait Management Districts F/B 2 North Afognak, F/B 3 South Afognak, F/B 10 Inner Marmot (Figure 5), and the F/B 5 Uyak (Figure 6) have declined during the last four years. Most of these units were closed during the 1995 sac roe herring fishery. To prevent further exploitation on these depressed stocks, these districts will be closed to commercial food/bait fishing for the entire 1995-96 season.

Kamishak Spawning Stocks

As of September 21, 1995 the 1996 Kamishak spawning biomass is estimated at 20,925 tons instead of the previous estimate of 16,400 tons. As described in 5 AAC 27.465(e)(2) if the spawning biomass is 20,000 short tons or more, but less than 30,000 short tons, the **maximum** allowable exploitation rate is 15 percent, with 13.5 percent allocated to the Kamishak sac roe fishery and 1.5 percent allocated to the Shelikof Strait food and bait fishery. However, problems in developing the 1996 Kamishak Bay herring forecast resulted in the Lower Cook Inlet management staff applying a more conservative exploitation rate which resulted in a 1.2 percent allocation of the exploitable biomass for the Shelikof food and bait herring fishery.

The GHL for the Kamishak Bay herring stocks for the Shelikof Strait Food/Bait Fishery is 250 tons.

As discussed in 5 AAC 27.535(b) Harvest Strategies, the GHL's for the Kodiak food/bait management districts (F/B 1 and F/B 4) will be combined with the Kamishak Bay herring allocation.

The Kamishak Bay GHL of 250 tons plus the Kodiak stock combined GHL's for food/bait units F/B 1 and F/B 4 of 290 tons, gives a combined GHL of 540 tons. When the 454 ton GHL is reached or approached, the following management districts will be closed collectively to further food/bait herring fishing, F/B 1, F/B 4, F/B 11, and F/B 12, Figure 2. Herring harvested in food and bait management units F/B 11 and F/B 12 are attributed to the Kamishak Bay GHL.

GHL Summary

Shelikof Strait Fishery	250 Tons	Kamishak Allocation
	290 Tons	Kodiak Stocks (F/B 1 and 4)
	540 Tons	Total
Remainder of the Kodiak Area	168 Tons	
Total for the entire Kodiak Area	708 Tons	Total

REGULATIONS

Season Dates

From August 1, 1995 through February 28, 1996.

Fishing Periods

Open to continuous fishing from 12:01 A.M. 8/1/95 to 12:00 P.M. 2/28/96 unless superseded by emergency order closures. However, if effort and harvest levels escalate, there may be a need to establish set fishing periods to maintain an orderly fishery. Changes in fishing periods will be made by an emergency order.

Closed Waters

The North Afognak F/B 2, South Afognak F/B 3, Uyak F/B 5, and the Inner Marmot F/B 10 food/bait herring districts are closed to commercial food/bait herring fishing for the entire 1995/96 season.

See CLOSED WATERS section in the 1995-96 Commercial Herring Fishing Regulations (page 57), 5 AAC 27.530.

Consult 1993 Commercial Salmon Fishing Regulations, (5 AAC 18.350), for a listing of closed waters for the Kodiak food/bait herring fishery for the period August 1 through October 31, 1995, pages 29-33.

Registration and Permits Required

Interim Use Permit is required before a registration permit will be issued. Interim use permits are issued from the Commercial Fisheries Entry Commission in Juneau for the following gear types:

- H01K Purse Seine
- H34K Gillnet
- H07K Trawl

Registration Permit - Kodiak ADF&G Office

- All fishers and processor/buyers are required to register with the Kodiak ADF&G office prior to fishing.

Registration Permit will be used for:

- Monitoring fleet size by gear type.
- Clarifying catch reporting procedures, closed water areas, and inseason emergency order announcement procedures.

Legal Gear Restrictions

Following are the gear restrictions by type for purse seine, gillnet, and trawl gear for the Kodiak Food/Bait Fishery.

Gear Code

01 - Purse Seines
- Maximum length: 150 fathoms
- Maximum depth: 1,625 meshes. For Area K there are no web size restrictions.
- Lead length unrestricted.

34 - Gillnets
- Maximum length: 150 fathoms; mesh size: 2-1/8" to 2-1/2".
- No depth restrictions.

07 - Trawl
- No restrictions

Consult the 1995-96 Commercial Herring Fishing Regulations for a complete listing of all regulations.

EMERGENCY ORDER (E.O.) ANNOUNCEMENTS

It is important for Kodiak food/bait fishers to be aware of management district closures. This can be accomplished by 1) personal contact with the Kodiak ADF&G management staff, via office visits or by calling 486-1830, 2) contacting Kodiak ADF&G management staff on SSB radio frequency 3.230 Mhz, 3) contacting local herring processors, 4) calling the Kodiak ADF&G recorded message phone at 486-4559, 5) listening for an emergency order update which will be broadcasted at 8:00 A.M. and 6:00 P.M. after the marine weather on SSB radio frequency 4.125 Mhz or 6) by picking up the most recent emergency order from the holder mounted outside the ADF&G office.

The ADF&G vessel R/V K-Hi-C may be present on the fishing grounds and will initiate management unit closures once GHL's are achieved. The R/V K-Hi-C can be reached on VHF channel 6 or SSB radio frequency 3.230 Mhz.. The crew of the R/V K-Hi-C will also contact fishers in person to inform them of closures and obtain harvest data.

REPORTS REQUIRED BY FISHERMEN

All landings of herring for food/bait purposes must be **verbally** reported to ADF&G before the product is totally unloaded at the dock.

The following phone numbers will reach Fish and Game personnel 24 hours per day:

- ADF&G Office: Monday through Friday
  8:00 A.M. to 4:30 P.M. - 486-1807 or 486-1830.

- After Office Hours: 4:30 P.M. to 8:00 A.M.
  - 486-6007 (Dave Prokopowich)
  - 486-3031 (Dennis Gretsch)
  - 486-6475 (Kevin Brennan)

All fish tickets must be completed and sent to the Kodiak Fish and Game office within a week of the landing.

Send to: Alaska Department of Fish and Game
Division of Commercial Fisheries
ATTN: Dave Prokopowich
211 Mission Road
Kodiak, Alaska 99615

FISHER COOPERATION

Department personnel will conduct confidential skipper interviews to obtain biomass estimates, average school size, and herring distribution data. Additionally, fisher cooperation will be appreciated when Department personnel request herring samples. These samples will be used to determine age composition, and length and weight characteristics of the commercial harvest.

Table 1. Kodiak Management Area 1995/96 herring food/bait harvest strategy. A listing of guideline harvest levels by food/bait management districts[a]. (G.H.L. harvest numbers represent short tons).

Food/Bait Mgmt. Dist.	Sac Roe Management Units No.	Name	1995 Sac Roe G.H.L.	1995 Sac Roe Harvest	1995/96 Food/Bait G.H.L.
F/B 1	WA10	Raspberry	350	3	0
	WA20	Malina	250	55	5
West Afognak	WA31	Paramanof	400	709	71
Unit	WA32	Foul Bay	75	801	80
	WA40	Blue Fox/Devil's Inlet	60	0	0
	WA50	Offshore Afognak	Exploration	0	Exploration
UNIT TOTAL:			1,135	1,568	156
F/B 2[b]	NA10	Shuyak	20	0	Closed
	NA20	Delphin Bay	Closed	0	Closed
North Afognak	NA30	Perenosa Bay	Closed	0	Closed
Unit	NA40	Seal Bay	Closed	0	Closed
	NA50	Tonki Bay	Closed	0	Closed
UNIT TOTAL:			20	0	Closed
F/B 3[b]	SA10	Izhut Bay	Closed	0	Closed
	SA20	Kitoi Bay	Closed	0	Closed
South Afognak	SA30	McDonalds Lagoon	Closed	0	Closed
Unit	SA40	Danger Bay	Closed	0	Closed
	SA50	Litnik	Closed	0	Closed
	SA60	Duck Bay	Closed	0	Closed
UNIT TOTAL:			Closed	0	Closed
F/B 4	UG10	Kupreanof	10	0	0
	UG20	Viekoda Bay	100	0	0
Uganik	UG21	Terror Bay	200	357	36
Unit	UG30	Village Islands	250	314	31
	UG31	W. Uganik Passage	75	19	2
	UG32	N.E. Arm Uganik	30	78	8
	UG33	E. Arm Uganik	100	179	18
	UG34	S. Arm Uganik	150	392	39
	UG40	Offshore Uganik	Exploration	0	Exploration
UNIT TOTAL:			915	1,339	134
F/B 5	UY10	Offshore Uyak	Closed	0	Closed
	UY20	Harvester Island	Closed	0	Closed
Uyak[b]	UY30	Inner Uyak	Closed	0	Closed
Unit	UY32	Browns Lagoon	Closed	0	Closed
	UY31	Larsen Bay	Closed	0	Closed
	UY40	Zachar Bay	Closed	0	Closed
	UY50	Spiridon	Closed	0	Closed
UNIT TOTAL:			Closed	0	Closed

-Continued-

Table 1. (page 2 of 3)

Food/Bait Mgmt. Dist.	Sac Roe Management Units No.	Name	1995 Sac Roe G.H.L.	Harvest	1995/96 Food/Bait G.H.L.
F/B 6 Sturgeon/ Halibut Unit	SH10	Sturgeon/Halibut	Exploration		Exploration
F/B 7	AL10	Outer Alitak	Exploration	0	Exploration
	AL20	Inner Alitak	Exploration	17	2
Alitak	AL21	Inner Deadman Bay	150	12	1
Unit	AL22	Outer Deadman Bay	125	118	12
	AL30	Sulua Bay	190	199	20
	AL31	Portage Bay	75	77	8
	AL40	Lower Olga/Moser Bay	20	0	0
	AL41	N. Upper Olga Bay	10	0	0
	AL50	Upper Olga Bay	75	0	0
	AL60	Geese/Twoheaded	15	0	0
UNIT TOTALS:			660	423	43
F/B 8	EA10	Kaiugnak	20	0	0
	EA20	S.W. Sitkalidak	20	0	0
	EA21	Three Saints Bay	60	35	3
Eastside	EA22	Newman Bay	40	2	0
Unit	EA23	W. Sitkalidak Strait	300	106	11
	EA24	Barling Bay	50	56	6
	EA30	E. Sitkilidak	290	391	39
	EA31	Tanginak Anchorage	15	16	2
	EA40	Outer Sitkalidak	Exploration	0	Exploration
	EA41	Boulder Bay	Exploration	0	Exploration
	EA42	Shearwater Bay	90	112	11
	EA43	Outer Kiliuda Bay	80	133	13
	EA44	Inner Kiliuda Bay	80	83	8
	EA50	Outer Ugak Bay	60	135	13
	EA51	Inner Ugak Bay	120	57	6
	EA52	Pasagshak	40	20	2
UNIT TOTAL:			1,265	1,146	114
F/B 9	NE10	Womens Bay	100	9	1
	NE20	Kalsin Bay	15	0	0
Northeast	NE30	Middle Bay	20	0	0
Unit	NE40	Inshore Chiniak	10	0	0
	NE50	Offshore Chiniak	Exploration	0	Exploration
UNIT TOTAL:			145	9	1
F/B 10	IM10	Monashka/Mill Bay	Exploration	0	Closed
Inner Marmot[b]	IM20	Anton Larsen Bay	Closed	0	Closed
Unit	IM30	Sharatin Bay	10	0	Closed

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Table 1. (page 3 of 3)

Food/Bait Mgmt. Dist.	Sac Roe Management Units No.	Name	1995 Sac Roe G.H.L.	1995 Sac Roe Harvest	1995/96 Food Bait G.H.L.
	IM40	Kizhuyak Bay	15	14	Closed
	IM50	Spruce Island	10	0	Closed
UNIT TOTAL:			35	14	Closed
F/B 11 North Mainland Unit	NM10	Hallo Bay	Exploration	0	Exploration
	NM20	Inner Kukak	65	26	3
	NM30	Outer Kukak	Exploration	0	Exploration
	NM40	Inner/Outer Missak	Exploration	0	Exploration
UNIT TOTAL:			65	26	3
F/B 12 Mid-Mainland Unit	MM10	Inner Katmai	65	21	2
	MM20	Outer Katmai	Exploration	0	Exploration
	MM30	Alinchak	50	0	0
	MM40	Puale Bay	Exploration	0	Exploration
	MM50	Portage Bay	Exploration	0	Exploration
	MM60	Outer Portage Bay	Exploration	0	Exploration
UNIT TOTAL:			115	21	2
F/B 13 South Mainland Unit	SM10	Wide Bay	125	55	5
	SM20	Lower Shelikof	Exploration	0	Exploration
UNIT TOTAL:			125	55	5
GRAND TOTALS:			4,480	4,601	458

[a] The Kodiak Area total G.H.L. for food/bait fishery, as indicated in the 1994-95 Herring Regulations, is managed so that the food/bait harvest does not exceed 10% of the actual herring sac roe harvest in the previous season. This table reflects the available food/bait harvest for each sac roe stock or food/bait district, whichever applies. (See Harvest Strategy.) G-H-L and harvest figures are rounded to the nearest ton.

[b] These management districts will be closed for the entire 1995/96 Food/Bait Herring season.

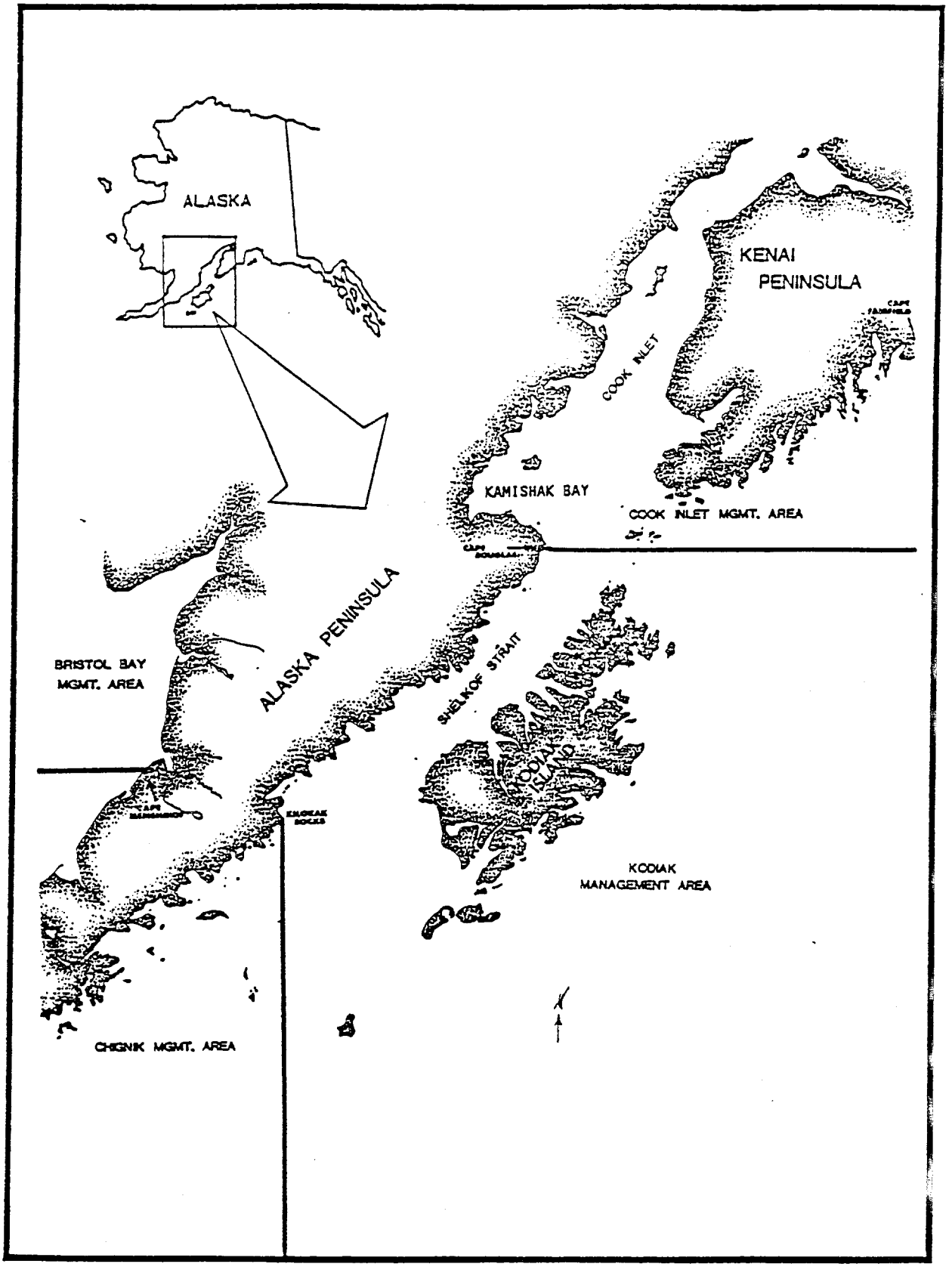

Figure 1. Map of southcentral Alaska showing the Kodiak and Cook Inlet herring management areas, along with the location of Kamishak Bay and Shelikof Strait.

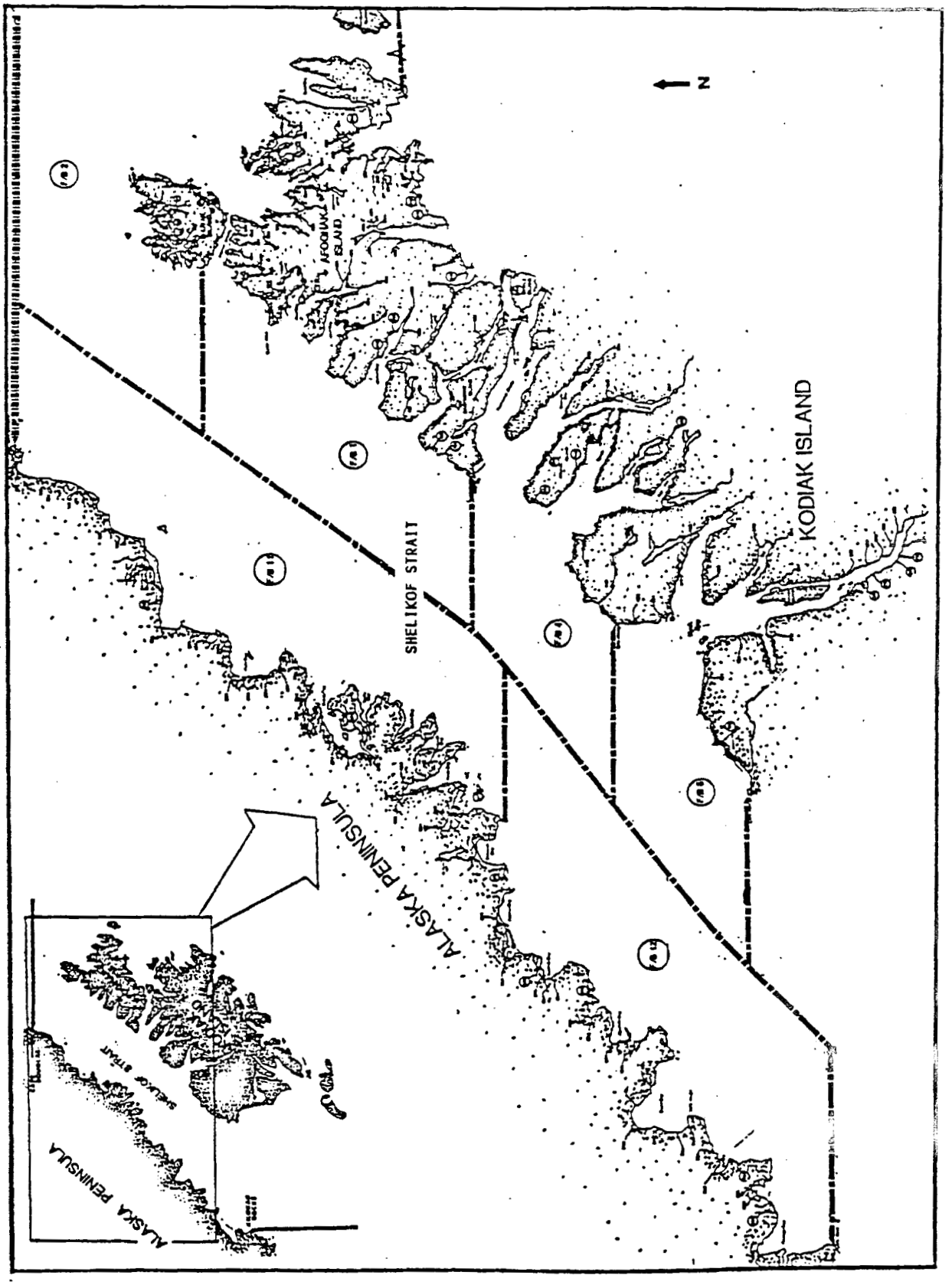

Figure 2. Kodiak food and bait herring management districts (FB1, FB2, FB4, FB5, FB11, and FB12) which are affected by the harvest of Kamishak Bay herring.

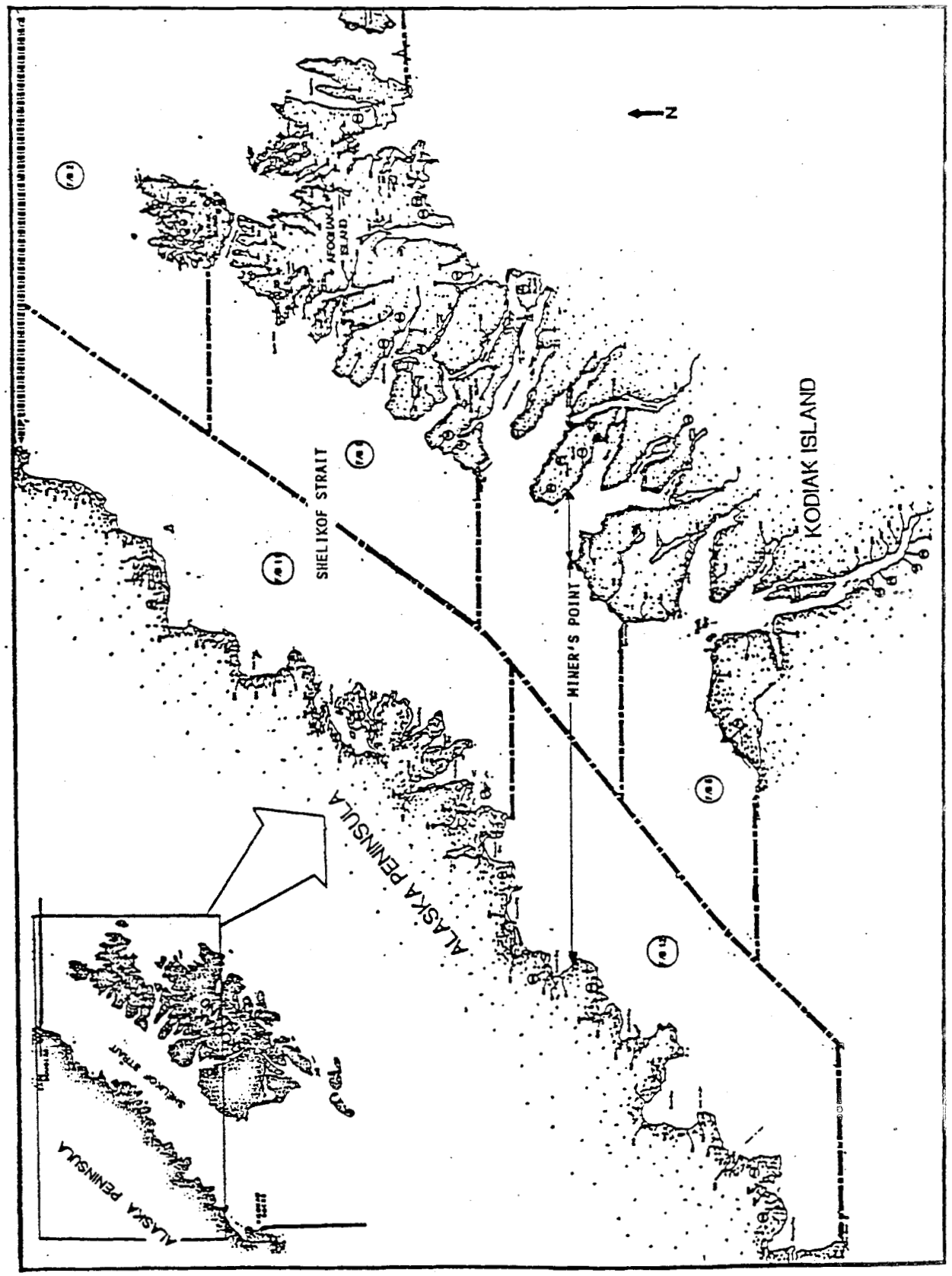

Figure 3. Kodiak food and bait management area north of the latitude of Miner's Point which would be closed if the Kamishak Bay herring biomass is below 8,000 tons.

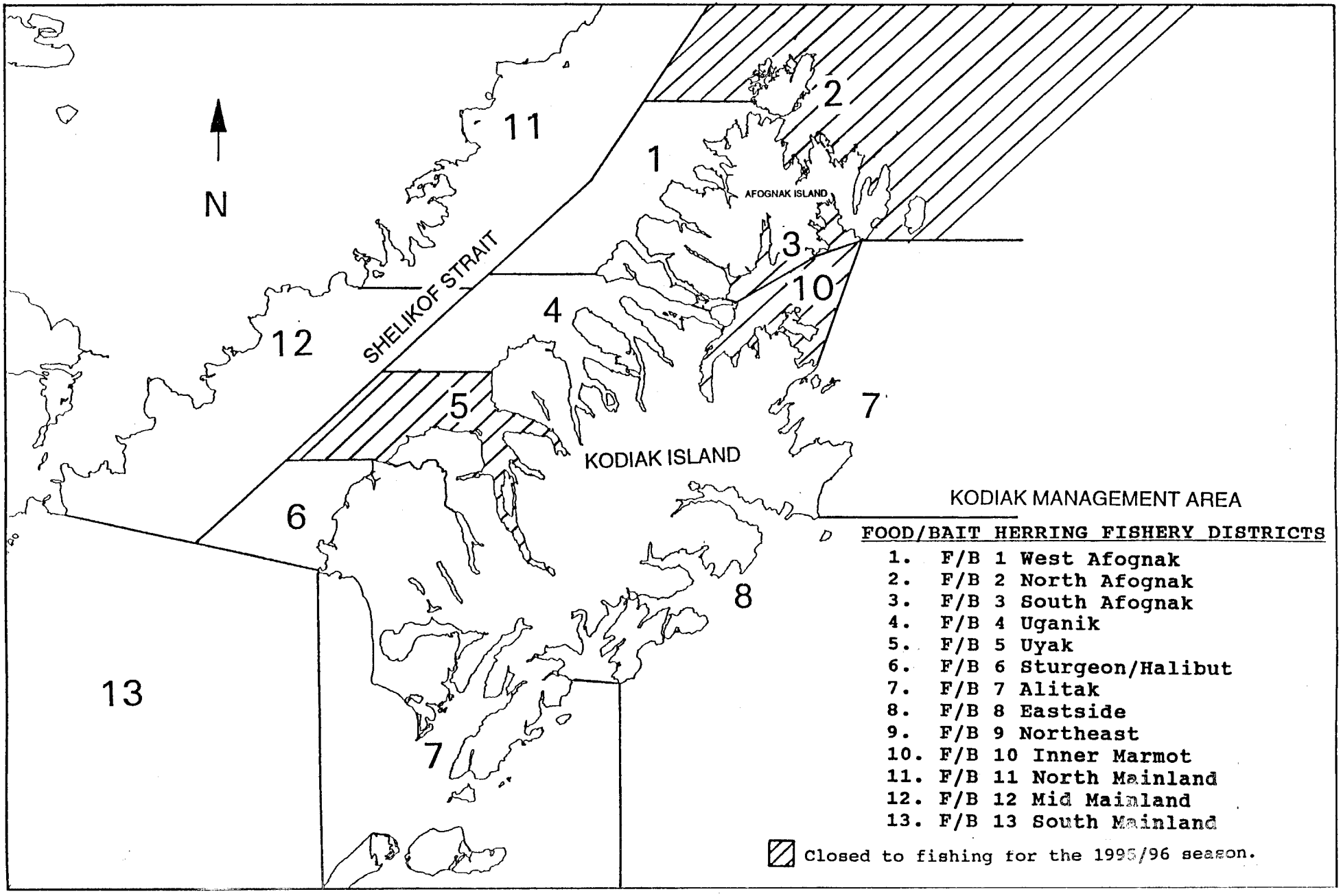

Figure 4. Kodiak Area food/bait herring fishery districts and key to enlarged maps (1-8).

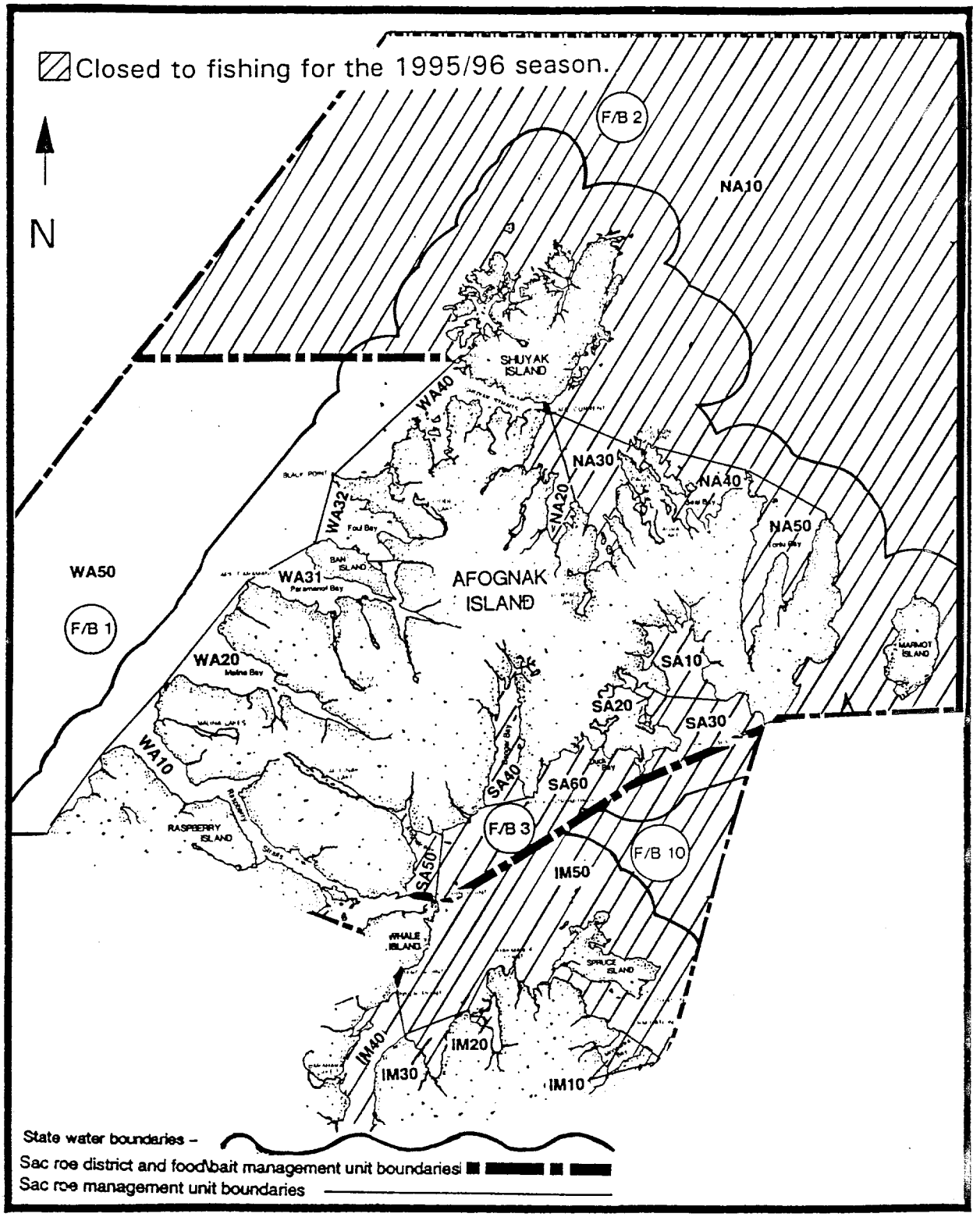

Figure 5. Map #1, food and bait districts 1, 2, 3, and 10, Kodiak Management Area.

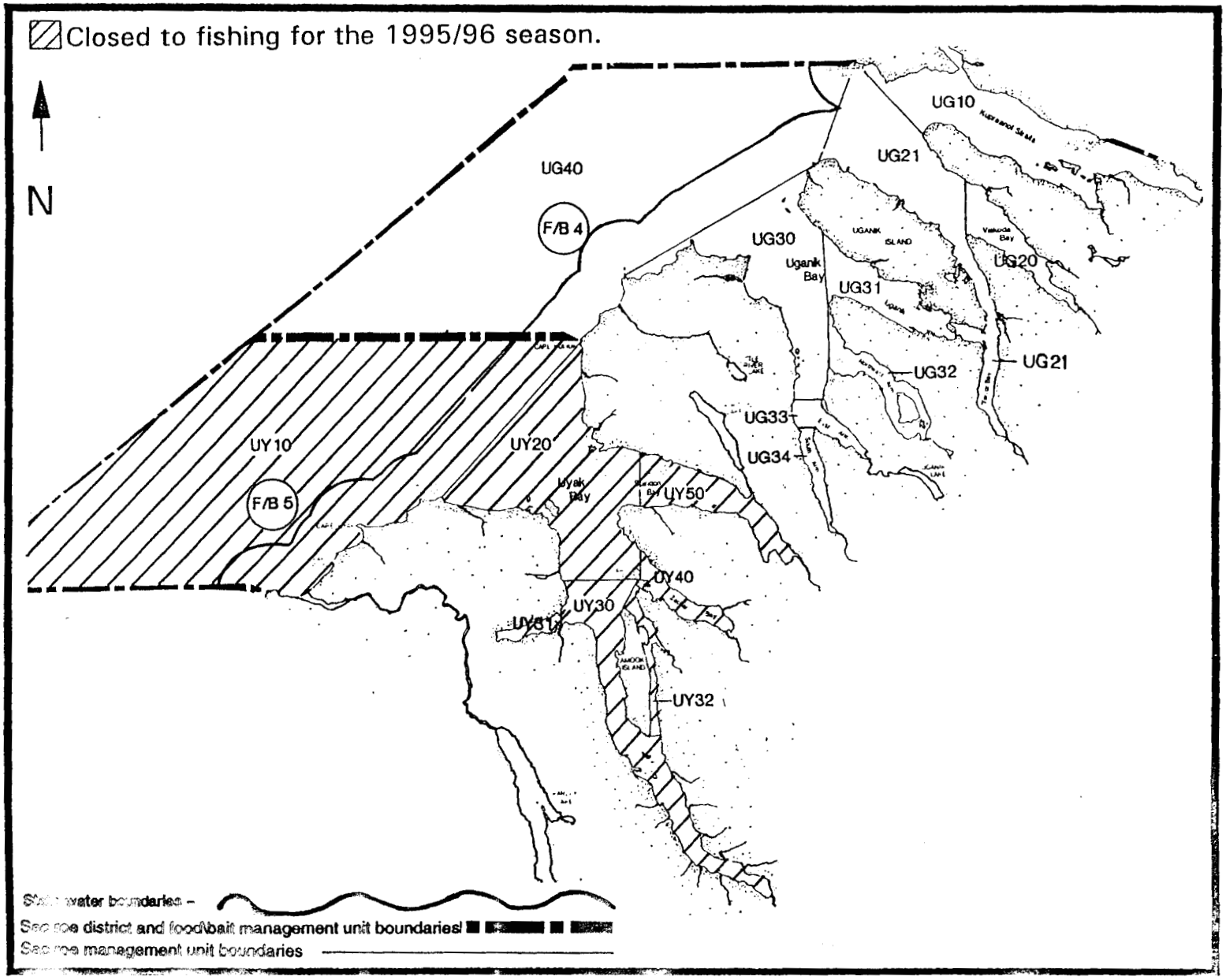

Figure 6. Map #2, food and bait herring districts 4 and 5, Kodiak Management Area.

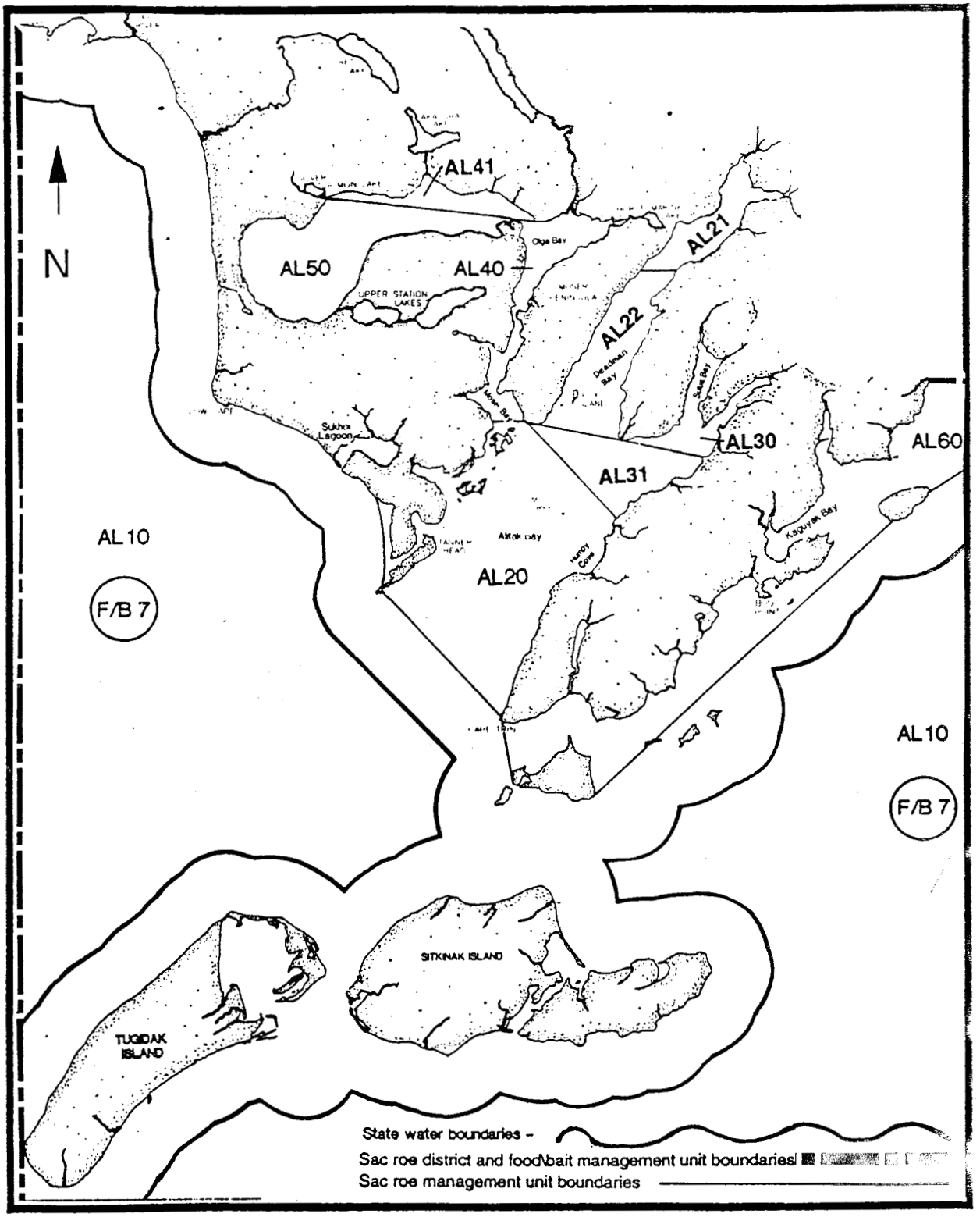

Figure 7. Map #3, food and bait herring district 7, Kodiak Management Area.

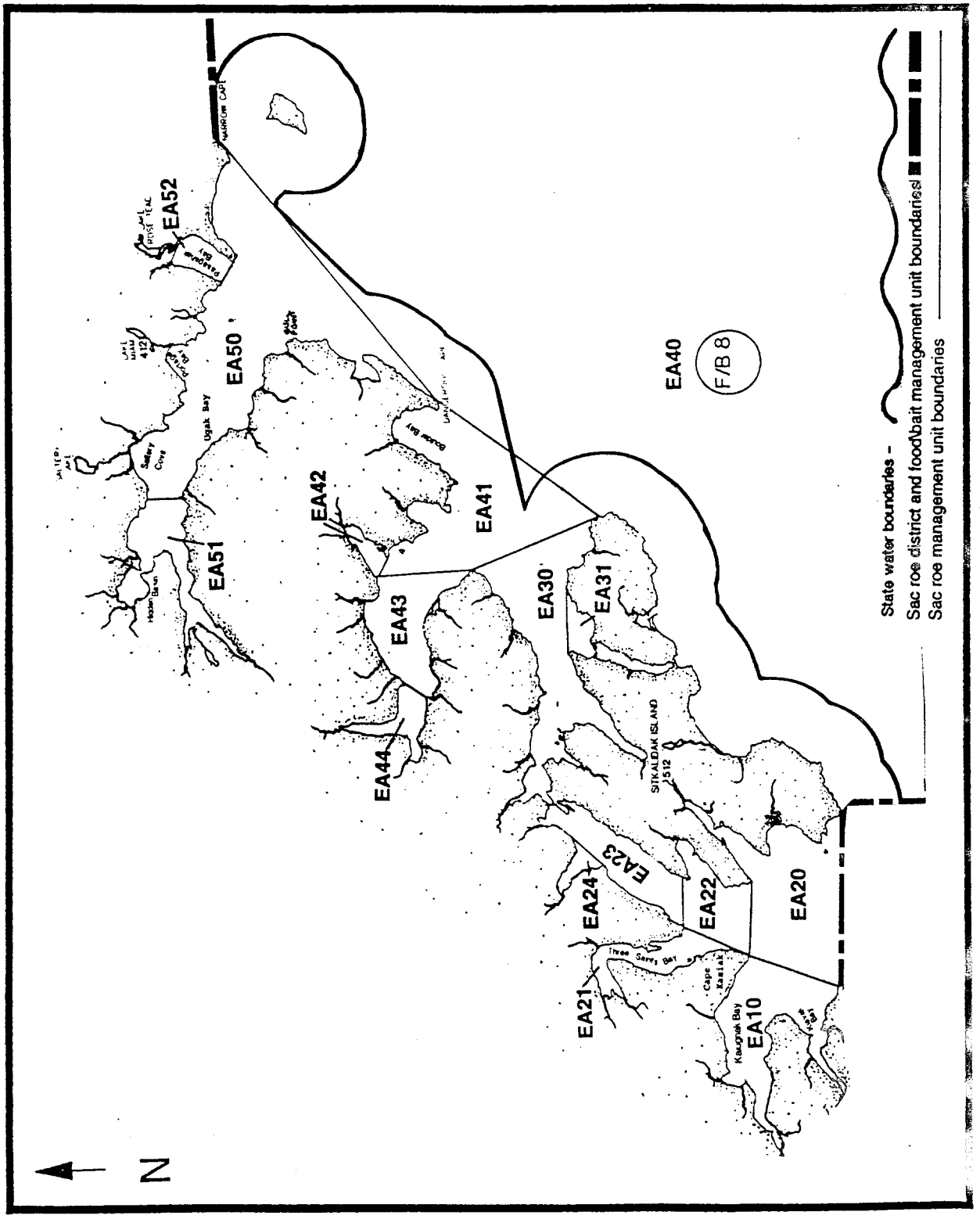

Figure 8. Map #4, food and bait herring district 8, Kodiak Management Area.

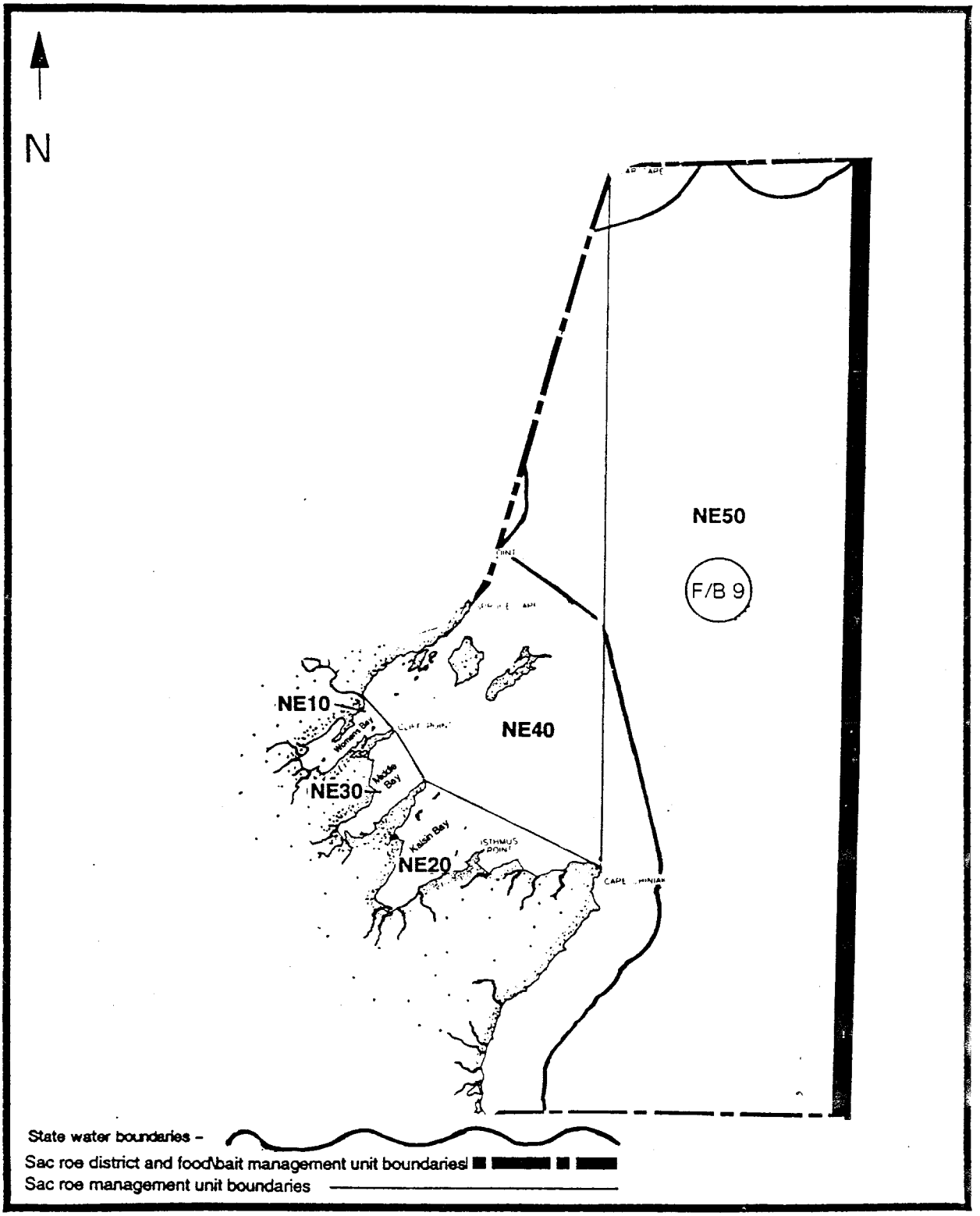

Figure 9. Map #5, food and bait herring district 9, Kodiak Management Area.

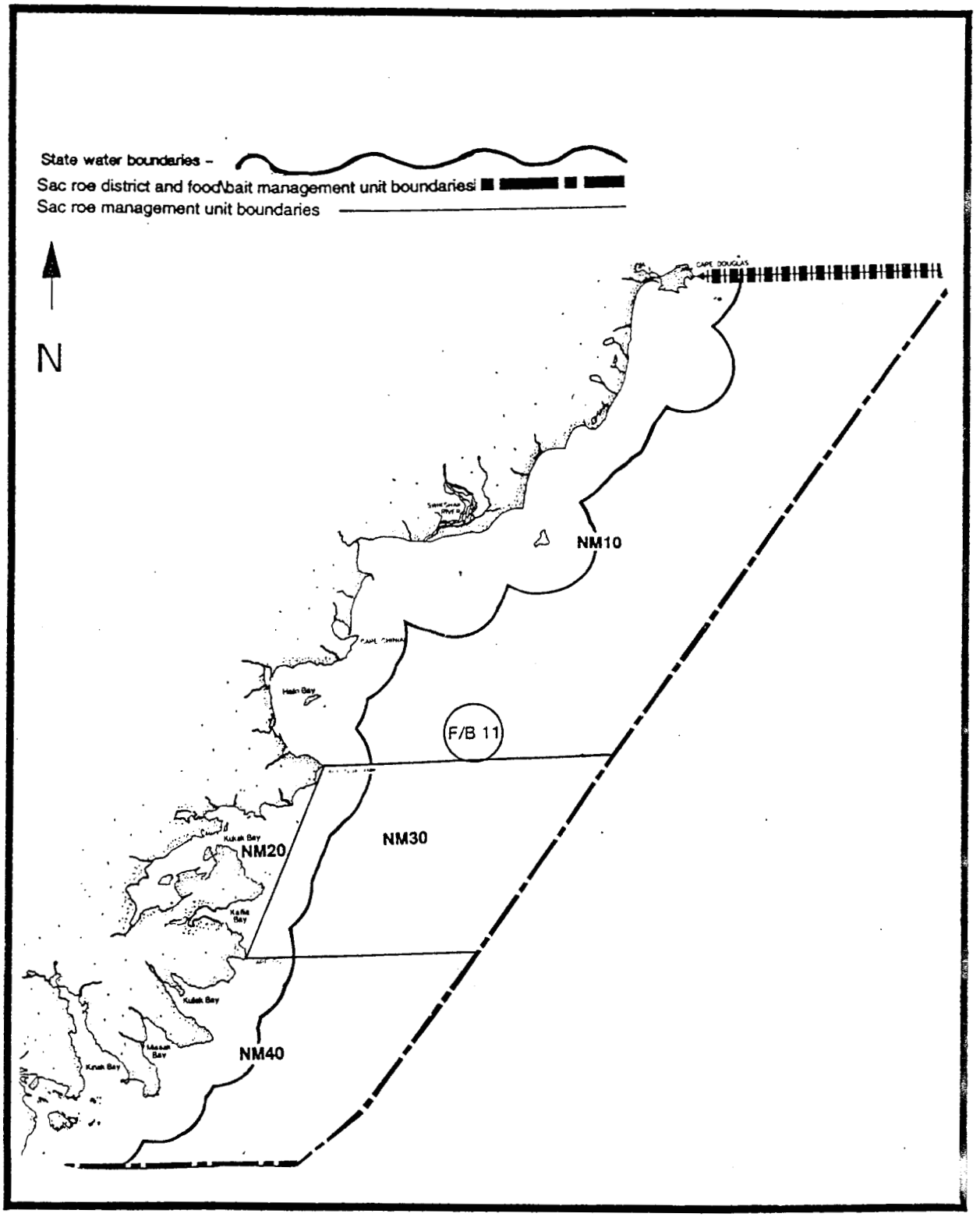

Figure 10. Map #6, food and bait herring district 11, Kodiak Management Area.

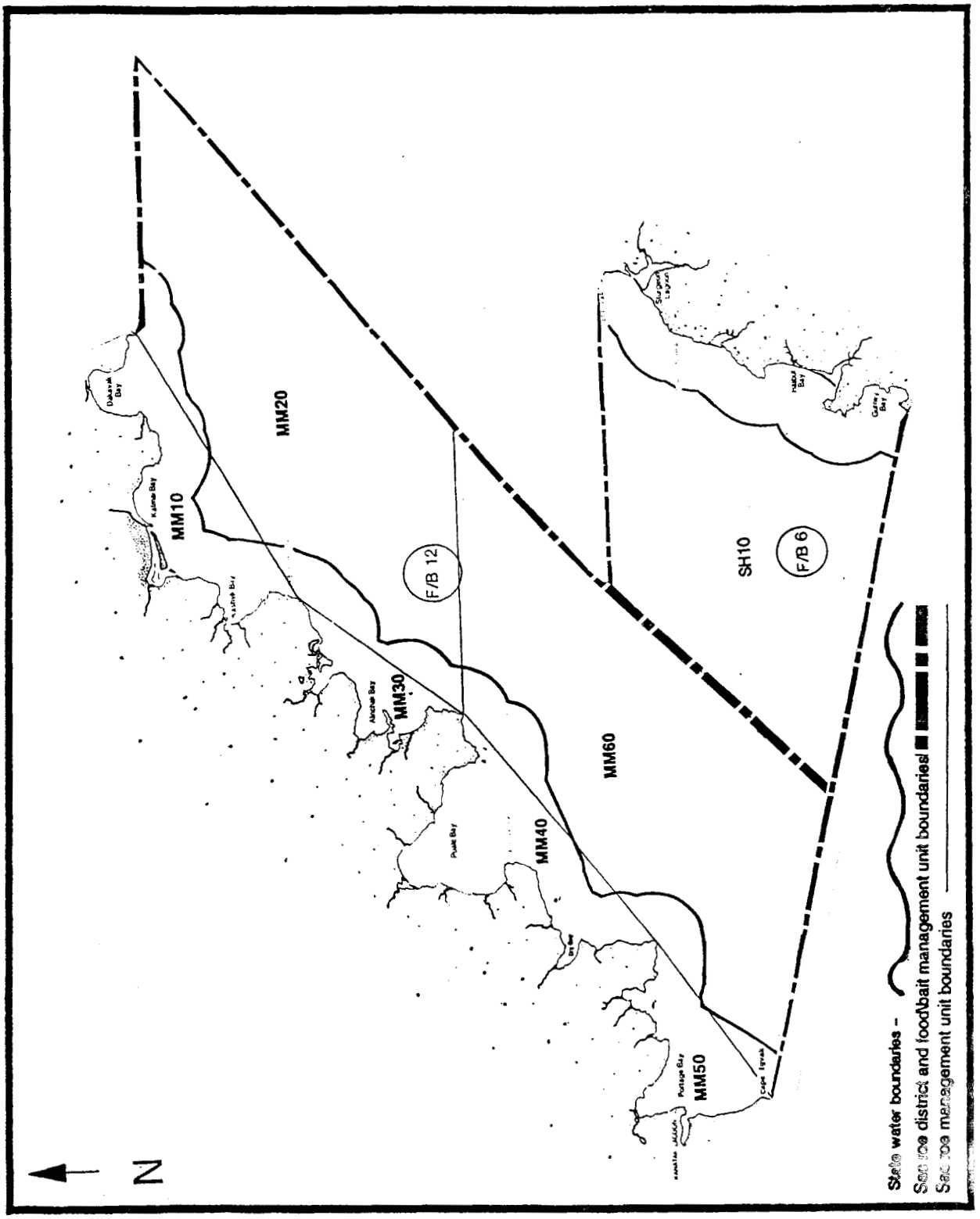

Figure 11. Map #7, food and bait herring districts 6 and 12, Kodiak Management Area.

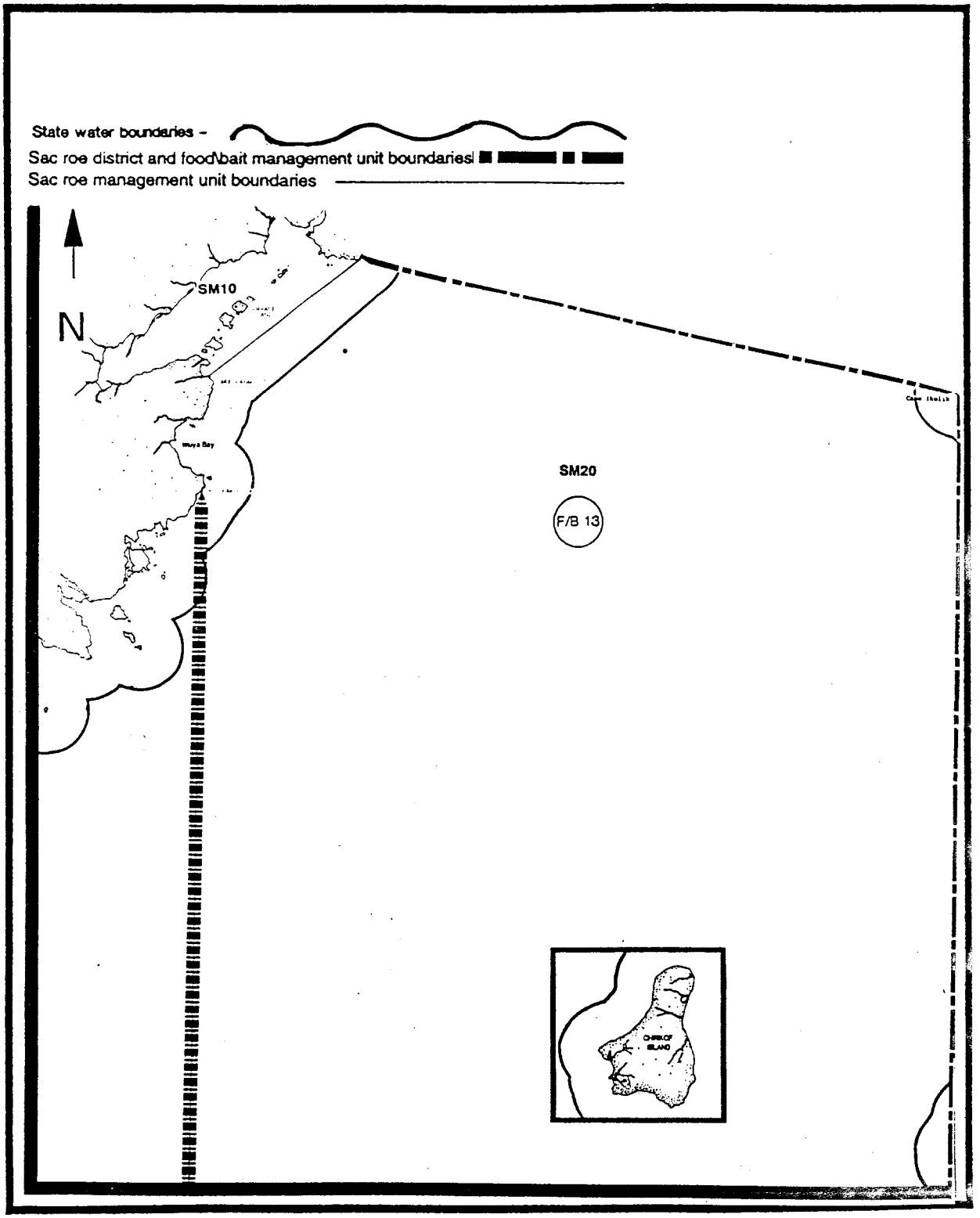

Figure 12. Map #8, food and bait herring district 13, Kodiak Management Area.

Appendix C. Herring subsistence/personal use conditions of permit.

CONDITIONS OF THIS PERMIT

1. This permit provides for the taking of herring for subsistence/personal use purposes during the commercial herring sac-roe fishery. Herring caught under the conditions of this permit are for personal use only and may not be sold.

2. This permit is valid only for persons not participating in the commercial sac-roe fishery as a permit holder or crewman.

3. Commercial sac-roe fishermen participating in the Kodiak sac-roe fishery as a permit holder or crewman may retain herring from their lawfully taken commercial catch to fulfill their personal bait or food requirements.

4. For the purposes of this permit participating in the commercial sac-roe fishery means: being a permit holder or crewman who is operating commercial herring gear or on a vessel which has commercial herring gear on board.

WHEN: This permit is only required from April 15 through June 30; no permit is required to take subsistence/personal use herring during the remainder of the year, from July 1 through April 14. During the sac-roe season there are no closed periods to subsistence/personal use fishing.

WHERE: This permit is valid for all waters of the Kodiak Management Area, including those closed to commercial herring fishing. However, at any time, if biological or unlawful circumstances warrant it, emergency order closures of pertinent areas may be required.

HOW: This permit limits the type and quantity of gear to gillnet gear not exceeding 25 fathoms in length. The net must be attended at all times while fishing and be marked with buoys which have your name and address on them.

HOW MUCH: There are no restrictions on the amount of herring which can be taken with this permit.

REPORTING REQUIREMENTS: A complete record of harvest activity must be kept on the reverse side of this permit, to include harvest estimate in pounds of fish and the harvest location as well as type of use.

MISCELLANEOUS: No herring caught under the conditions of a herring subsistence/personal use permit may be onboard a vessel which also has commercially caught herring on board.